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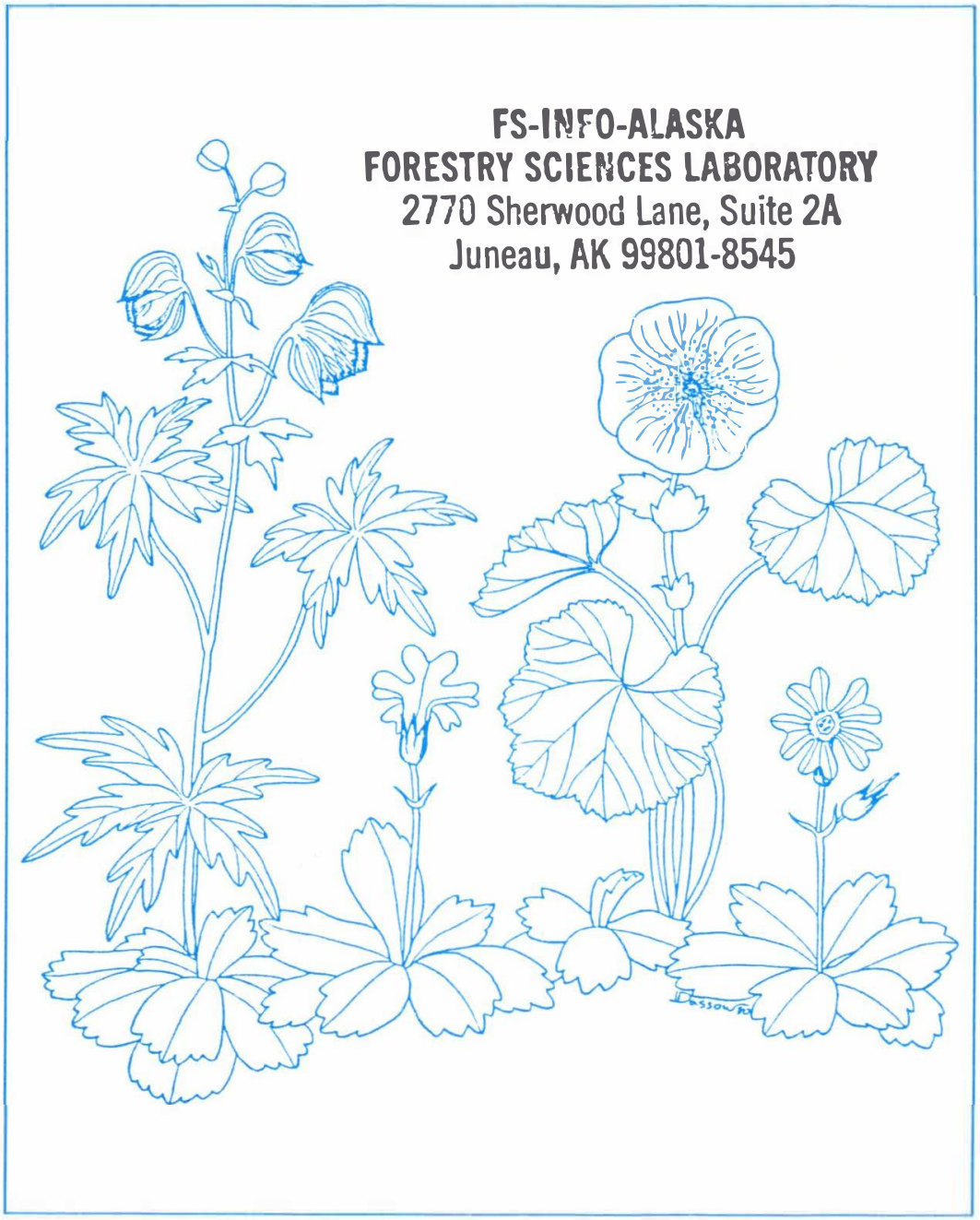
Common Alpine Plants of Southeast Alaska

O. Wayne Robuck



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Common Alpine Plants of Southeast Alaska

by O. Wayne Robuck

Abstract

This guide identifies 112 common plants of the alpine zone of southeast Alaska. A simplified taxonomic key and a short description of each plant are provided, and 82 plants are illustrated. The guide is intended for the amateur botanist, and technical terminology is minimal. A glossary and illustrations of plant parts explains the botanical terms used.

Keywords: Flora, identification (plant), keys (plant), alpine, alpine plants, Alaska (southeast).

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Introduction

On the mountains of the Alexander Archipelago and adjacent mainland of southeast Alaska, a well-vegetated, but almost treeless, region exists between the upper limits of growth of erect forest trees and the bare rock, perennial snow, and glacier ice of higher mountain peaks. Locally referred to as the "alpine" (alpine means above the trees), the low-growing, predominantly herbaceous vegetation, moderately steep terrain and bright, sweeping vistas are in sharp contrast to the dense, shady, forests of tall conifers that cover most of the steep mountain slopes between the alpine region and the shorelines of the saltwater inlets, bays, fiords, straits and passages of the Archipelago.

Vegetation in the southeast Alaska alpine region ranges from stands of widely scattered, tiny, prostrate perennial herbs and dwarfed woody plants on exposed, windy ridges, to lush meadows of grasses, sedges, and broad-leafed herbs with conspicuous flowers. Bogs and mires (called "muskeg" in Alaska) dominated by sphagnum, mosses, and other nonflowering plants are present at the lower elevation of the alpine zone where it intergrades into the muskegs, meadows, and groves of bonsai-like conifers that characterize the transitional subalpine zone between the forests and alpine. Shallow ponds, stained dark by organic matter, are scattered through the high-elevation muskegs. Numerous small streams with narrow rocky channels flow through the alpine. These originate in the perennial snow and glacier ice of the higher peaks and from the semipermanent (summertime) snowbanks that are the major scenic and environmental features of the alpine zone itself.

Although treeless alpine vegetation is usually present between the timberline and perennial snowline of most mountain ranges in the temperate and subarctic climate zones of the world, the alpine region of southeast Alaska has somewhat unusual characteristics. First, it begins at relatively low elevation, 1,500-2,000 feet above sea level; second, it is present in a northern coastal maritime environment with only moderately cold winter temperatures and abundant year-long precipitation.

Except on windswept ridges, this maritime environment causes a deep, wet snow pack to cover most of the southeast Alaska alpine throughout the winter. Deep, wet, long-lying snow protects the plants from cold temperatures and, more importantly, from rapidly fluctuating cycles of freezing and thawing and from the desiccation and physical abrasion caused by windblown ice and snow particles. Temperature under a deep snow pack is usually constant either at or just below freezing throughout the winter. For alpine plants, a deep snow cover means a benign winter climate. On exposed sites, plants are small and low growing and take advantage of the warmer air temperature and low winds of the microclimate next to the ground. In summer, the alpine environment of southeast Alaska is cloudy, cool, and rainy. Because the alpine zone is at relatively low elevation, it is often within the clouds; sunlight intensity, soil water evaporation, and plant transpiration are kept low.

A wet, deep snow cover in winter and a cloudy, cool, wet summer environment are quite different from that of most other alpine regions where, because of very cold winter temperatures and consequently dry snow, wind sweeps much of the snow off the true alpine zone and deposits it in deep drifts in the adjacent, lower elevation "subalpine" zone. On these other alpine areas, water available for plant growth is erratically distributed and may be sufficient for plant growth only for a short time immediately after the shallow snowpack melts or, during the summer, in local areas just below long-lying snowdrifts that form on sheltered, lee slopes in the alpine zone itself. In most alpine areas, the plants grow in a cold-dry environment. In southeast Alaska, this environment is present only on ridges exposed to the strong winter winds. Thus, the environment of the southeast Alaska "alpine zone" is really subalpine.

The vegetation of the alpine zone of southeast Alaska reflects this difference in climate. Most of the plants are also found in the subalpine and at even lower elevations. This distribution is not found elsewhere where the alpine flora is distinct and few true alpine species grow at low elevation. In southeast Alaska, many plants common in the alpine may also be found at sea level.

A few plants of the southeast Alaska alpine zone have arctic affiliations, but these are few and rare and present mainly on exposed ridges. The flora of the southeastern alpine zone contains relatively few species of flowering herbs, and most of these are described in this publication. Grasses and graminoids (sedges, rushes, woodrush) are not included, but not many of these species are present. Perhaps the most complex flora is the nonflowering cryptogams—sphagnum, mosses, liverworts, and lichens. They are abundant and visible but require identification techniques beyond the scope of this publication.

The lack of a unique flora does not diminish the beauty or interesting nature of the southeast Alaska alpine region. The vegetation is a complex mosaic of many different plant communities. Plants grow rapidly once the snow pack melts, and floral patterns change quickly as the growing season progresses.

Because many alpine species are small and grow closely intermingled with other species, in sheltered locations among rocks, or among other terrain features that protect them from wind or cause snow to accumulate, they are hard to see; alpine plant watchers may spend a lot of time on their knees.

On the other hand, the vegetation of an alpine meadow may reach waist height and contain an abundant display of many flowers of varied colors and shapes. Few views are more beautiful than on a rare, sunny summer day across an alpine meadow in full bloom, with the dark green forest and deep blue saltwater of the inland passage and another snow- and ice-capped mountain on an island or the mainland in the background.

How To Use This Guide

This guide provides the amateur botanist with a concise, simple way to identify 112 species of plants in the alpine zone of southeast Alaska. A taxonomic key is included, and plants are illustrated. All botanical terms are defined and illustrated.

For proper identification, the entire plant is needed: flowers, leaves, stems, and roots. To use the key, select from the first pair of statements the one that best describes the plant and proceed to the next pair of statements indicated by the number at the end of this statement. Continue this process until you find the number of the figure that illustrates the plant. The collected plant may appear somewhat different from the illustration and examining several individual plants may be necessary to make a correct determination.

Because all alpine plants are not included, a plant may not be in the key. Either Welsh (1974), *Anderson's Flora of Alaska and Adjacent Parts of Canada*, or Hulten (1968), *Flora of Alaska and Neighboring Territories*, is recommended for identifying alpine plants not included in this guide.

The scientific and common names of each plant species and the plant family it belongs to are given on each illustration. Most names used in this guide are those used by Welsh. The scientific name of a plant consists of two parts: the first, the genus (plural, genera) is like a person's last name; the second, the species, is like a person's given name. The name of the botanist who first described and named the plant follows the scientific name. Plant family names are also provided. A family is a group of related genera and helps to show the similarities in flowers or fruits, or both, that exist among genera that may be dissimilar in other characteristics.

A description of the size, growth forms, roots, stems, leaves, flowers, and fruits is given for each plant. Dietary, medicinal, and pharmaceutical or therapeutic uses of the plants discussed are not to be taken as recommendations for such use.

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List of Illustrated Plant Species

Figure

1. Meadow horsetail, *Equisetum arvense* L.
2. Stiff clubmoss, *Lycopodium annotinum* L.
3. Fir clubmoss, *Lycopodium selago* L.
4. Lady fern, *Athyrium filix-femina* (L.) Roth
5. Parsley fern, *Cryptogramma crispa* (L.) R. Br.
6. Fragile fern, *Cystopteris fragilis* (L.) Bernh.
7. Spreading woodfern, *Dryopteris austriaca* (Jacq.) Woynor ex Schinz & Thell.
8. Chocolate lily, *Fritillaria camschatcensis* (L.) Ker-Gawl.
9. Alp lily, *Lloydia serotina* (L.) Wats.
10. Northern tofieldia, *Tofieldia coccinea* Richards.
11. False hellebore, *Veratrum eschscholtzii* Gray
12. Mountain harebell, *Campanula lasiocarpa* Cham.
13. Bering chickweed, *Cerastium beeringianum* Cham. & Schlecht.
14. Moss campion, *Silene acaulis* L.
15. Northern yarrow, *Achillea millefolium* L. ssp. *borealis* (Bong.) Breitung
16. Alpine pussytoes, *Antennaria alpina* (L.) Gaertn.
17. Pussytoes, *Antennaria umbrinella* Rydb.
18. Clasping arnica, *Arnica amplexicaulis* Nutt.
19. Broadleaf arnica, *Arnica latifolia* Bong.
20. Lesser arnica, *Arnica lessingii* Greene
21. Arctic wormwood, *Artemisia norvegica* Fries
22. Alaska fleabane, *Erigeron humilis* Grah.
23. Coastal fleabane, *Erigeron peregrinus* (Pursh) Greene
24. Nodding hawkweed, *Hieracium triste* Willd.
25. Arctic sweet coltsfoot, *Petasites frigidus* (L.) Fries
26. Arrowleaf groundsel, *Senecio triangularis* Hook.
27. Northern goldenrod, *Solidago multiradiata* Ait.
28. Dandelion, *Taraxacum eriophorum* Rydb.
29. Swedish cornel, *Cornus suecica* L.
30. Roseroot, *Sedum rosea* (L.) Scop.
31. Alpine bittercress, *Cardamine bellidifolia* L.
32. Umbelflowered bittercress, *Cardamine oligosperma* Nutt.
33. Black crowberry, *Empetrum nigrum* L.

34. Mertens mountain-heather, *Cassiope mertensiana* (Bong.) D. Don
35. Alaska moss heather, *Cassiope stelleriana* (Pallas) DC.
36. Copperflower, *Cladothamnus pyrolaeflorus* Bong.
37. Alpine azalea, *Loiseleuria procumbens* (L.) Desv.
38. Yellow mountain-heather, *Phyllodoce glanduliflora* (Hook.) Coville
39. Dwarf blueberry, *Vaccinium caespitosum* Michx.
40. Alpine blueberry, *Vaccinium uliginosum* L.
41. Mountain cranberry, *Vaccinium vitis-idaea* L.
42. Bluegreen gentian, *Gentiana glauca* Pallas
43. Broadpetaled gentian, *Gentiana platypetala* Griseb.
44. Northern geranium, *Geranium erianthum* DC.
45. Common marestail, *Hippuris vulgaris* L.
46. Nootka lupine, *Lupinus nootkatensis* Donn
47. Northern oxytrope, *Oxytropis campestris* (L.) DC.
48. Common butterwort, *Pinguicula vulgaris* L.
49. Deercabbage, *Fauria crista-galli* (Menzies) Makino
50. Alpine willowherb, *Epilobium alpinum* L.
51. Dwarf fireweed, *Epilobium latifolium* L.
52. Alpine mountain sorrel, *Oxyria digynia* (L.) Hill
53. Alpine bistort, *Polygonum viviparum* L.
54. Pretty shootingstar, *Dodecatheon pulchellum* (Raf.) Merrill
55. Wedgeleaf primrose, *Primula cuneifolia* Ledeb.
56. Arctic starflower, *Trientalis europaea* L.
57. Monkshood, *Aconitum delphinifolium* DC.
58. Narcissus anemone, *Anemone narcissiflora* L.
59. Northern anemone, *Anemone parviflora* Michx.
60. Western columbine, *Aquilegia formosa* Fisch.
61. Mountain marshmarigold, *Caltha leptosepala* DC.
62. Fernleaf goldthread, *Coptis asplenifolia* Salisb.
63. Cooley buttercup, *Ranunculus cooleyae* Vasey & Rose
64. Western buttercup, *Ranunculus occidentalis* Nutt.
65. Mountain avens, *Geum calthifolium* Menzies
66. Luetkea, *Luetkea pectinata* (Pursh) Kuntze
67. Hairy cinquefoil, *Potentilla villosa* Pallas
68. Nagoonberry, *Rubus arcticus* L.
69. Sibbaldia, *Sibbaldia procumbens* L.

70. Netleaf willow, *Salix reticulata* L.
71. Northern grass-of-Parnassus, *Parnassia palustris* L.
72. Spotted saxifrage, *Saxifraga bronchialis* L. ssp. *funstonii* (Small) Hult.
73. Alaska saxifrage, *Saxifraga ferruginea* Grah.
74. Purple mountain saxifrage, *Saxifraga oppositifolia* L.
75. Brook saxifrage, *Saxifraga punctata* L.
76. Smallflowered Indian paintbrush, *Castilleja parviflora* Bong.
77. Unalaska Indian paintbrush, *Castilleja unalaschcensis* (Cham. & Schlecht.) Malte
78. Oeder lousewort, *Pedicularis oederi* M. Vahl
79. Whorled lousewort, *Pedicularis verticillata* L.
80. Sitka valerian, *Valeriana sitchensis* Bong.
81. Stream violet, *Viola glabella* Nutt.
82. Alaska violet, *Viola langsdorffii* (Reg.) Fisch.

List of Illustrated Plant Parts

Figure

83. Simple leaf; entire margin
84. Simple leaf; palmately lobed
85. Pinnately compound
86. Temately compound
87. Palmately compound
88. Alternate arrangement
89. Opposite arrangement
90. Whorled arrangement
91. Linear leaf
92. Lanceolate leaf
93. Elliptic leaf
94. Oval leaf
95. Ovate leaf
96. Oblong leaf
97. Obovate leaf
98. Cordate leaf
99. Flower parts
100. Inferior ovary
101. Superior ovary
102. Spike inflorescence
103. Raceme inflorescence
104. Panicle inflorescence
105. Head inflorescence
106. Stolon
107. Rhizome

Key for Identification

1. Mature plant not producing flowers and seeds, but reproducing by one-celled spores (clubmosses, horsetails, and ferns) 2
1. Mature plant producing flowers or seeds, or both, but not reproducing by one-celled spores (flowering plants) 8

2. Leaves not separated into distinct blade and stalk; spore-producing structures in axils of leaves or at the end of fertile branches in a cone-shaped structure 3
2. Leaves separated into distinct blade and stalk; spore-producing structures on under side of leaf along margins 5

3. Solid stems not jointed and grooved; green leaves not forming a sheath at the node 4
3. Hollow stems jointed and grooved; leaves not green, reduced to a whorl of fused scales (forming a sheath) at the nodes . . . . . meadow horsetail, fig. 1

4. Spores arising in axils of ordinary leaves; spore-producing zones alternate with sterile (nonspore-producing) zones; stems in small erect clusters, not creeping . . . . . fir clubmoss, fig. 3
4. Spores arising in coneshaped structures at end of aerial stems; stem creeping with erect simple or paired aerial stems . . . . . stiff clubmoss, fig. 2

5. Spore-producing leaves the same shape and size as nonspore-producing vegetative leaves 6
5. Spore-producing leaves not the same shape and size as nonspore-producing vegetative leaves . . . parsley fern, fig. 5

6. Rhizomes (fig. 107) covered with thin, dry, somewhat translucent scales; small- to medium-sized delicate fronds form a small crown; rounded spore-producing structures (sori) along veins on the lower surface; indusium (scalelike covering over sorus) attached under the sorus, the free tip hoodlike, arching over the sorus, withers with age . . . . . fragile fern, fig. 6
6. Rhizome covered with thick, persistent, old-leaf bases; medium- to large-sized, coarse fronds form a large crown; rounded to kidney-shaped spore-producing structure (sorus) along veins on lower surface, indusium lacking or not attached under sorus 7

7. Round to kidney-shaped indusium attached at one point at the sinus; blade ovate to triangular; lowermost primary segment (pinnae) commonly larger and broader than other segments . . . . . spreading woodfern, fig. 7
7. Indusium oblong to horseshoe shaped, attached along the vein on the side of the sorus towards the margin of the segment or lacking; blades lanceolate to lance-elliptic; lowermost primary segments shorter than the middle segments . . . . . .lady fern, fig. 4

8. Usually growing partly submerged in water; 8-12 leaves in a whorl . . . . . common marestail, fig. 45
8. Not usually growing partly submerged in water; leaves not in a whorl (fig. 90); if in a whorl, less than 8 to 12 leaves 9

9. All leaves basal; succulent, yellowish-green and slimy (sticky) on upper surface . . . . . common butterwort, fig. 48
9. Leaves not all basal, if basal, not succulent, yellowish-green and slimy on upper surface 10

10. Brown flowers; root with numerous ricelike kernels . . . . . chocolate lily, fig. 8
10. Flowers not brown; root lacking ricelike kernels 11

11. Plant with woody stem throughout, not dying back over winter 12
11. Plant with nonwoody stem (sometimes woody at base), usually dying back over winter 21

12. Erect shrub, not forming a mat; one to several, spreading, copper-colored flowers at end of twigs . . . . . copperflower, fig. 36
12. Shrub forming a mat, if erect, flowers not spreading and copper-colored 13

13. Fruit a berry 14
13. Fruit not a berry, usually a capsule 17

14. Flowers inconspicuous, lacking petals, fruit black . . . . . black crowberry, fig. 33
14. Flowers with conspicuous petals; fruit not black 15

15. Leaves evergreen, thick; flowers terminal . . . . . mountain cranberry, fig. 41
15. Leaves deciduous, thin; flowers in axil of leaves 16

16. Flowers solitary in leaf axil of new twigs; sepals (fig. 99) shallowly lobed, deciduous in fruit; leaf margins sharply toothed throughout . . . . . dwarf blueberry, fig. 39
16. Flowers one to few in leaf axil of last season's twigs; sepals deeply lobed, persistent in fruit; leaf margins not sharply toothed, usually entire . . . . . alpine blueberry, fig. 40

17. Flowers rose-pink, two to six at the end of branches; leaves elliptic to oblong (figs. 93, 96) . . . . . alpine azalea, fig. 37
17. Flowers white to yellow-green, solitary or in clusters arising from end of branches and stems; leaves scalelike, needlelike, linear-lanceolate, or oval to rounded 18

18. Flowers in a dense, erect, spikelike cluster (fig. 102); leaves oval to rounded . . . . . netleaf willow, fig. 70
18. Flowers not in a dense, erect, spikelike cluster; leaves scalelike, needlelike, or linear-lanceolate 19

19. Flowers yellow-green, in clusters of 5 to 10 from tip of erect stem . . . . . yellow mountain-heather, fig. 38
19. Flowers white, solitary, subterminal to terminal 20

20. Two or more flowers from sides of stem below tip; leaves opposite (fig. 89), scalelike with overlapping bases; stem four-angled or square in cross section; petal lobes about one-half as long as tube
. . . . . Mertens mountain-heather, fig. 34
20. Single flower on tip of stem; leaves alternate (fig. 88), more or less spreading, linear-lanceolate; stem rounded in cross section; petal lobes longer than the tube
. . . . . Alaska moss heather, fig. 35

21. Flowers yellow 22
21. Flowers not yellow 37

22. Flowers in head inflorescence (fig. 105) 30
22. Individual flowers, not in a head inflorescence 23

23. Leaves simple (fig. 83), not lobed 24
23. Leaves compound, or, if simple, divided into lobes (avens has a large terminal leaflet and two minute leaflets) 25

24. Pea-like flower with a saclike projection; cordate to kidney-shaped basal leaves, stem leaves reduced
. . . . . stream violet, fig. 81
24. Flower without a saclike projection, petals united to form two lips, upper lip helmet shaped, basal leaves lacking, stem leaves lanceolate to ovate
. . . . . Unalaska Indian paintbrush, fig. 77

25. Leaves palmately divided into three leaflets (fig. 86) 26
25. Leaves not palmately divided into three leaflets (may be lobed) 27

26. Showy yellow flowers at end of stems; stem and leaves with long, spreading hairs. . . . . hairy cinquefoil, fig. 67
26. Inconspicuous flowers; leaves with stiff, short hair . . . . . sibbaldia, fig. 69

27. Leaves three to five lobed 28
27. Leaves pinnate (one enlarged terminal leaflet and several smaller leaflets) (fig. 85), if lobed, segments on opposite sides of midrib 29

28. Usually one large flower; leaves all basal, lobes with rounded teeth . . . . . .Cooley buttercup, fig. 63
28. Flowers in clusters, sepals bent backwards and at maturity they fall off; leaves not all basal, lobes toothed or divided again . . . . . .western buttercup, fig. 64

29. Leaves divided into oblong to ovate segments on opposite sides of midrib; petals united to form a helmet-shaped upper lip and a three-lobed lower lip . . . . . oeder lousewort, fig. 78
29. Leaves with enlarged terminal leaflet and one to several small leaflets below large end leaflet; petals longer than broad . . . . . mountain avens, fig. 65

30. Heads with tubular disk flowers (fig. 105) only . . . . . Arctic wormwood, fig. 21
30. Heads with both tubular disk flowers and straplike ray flowers (fig. 105) or ray flowers only 31

31. Heads with straplike ray flowers only 32
31. Heads with both straplike ray and tubular disk flowers . . . 33

32. Leaves divided into segments on opposite side of a midrib; solitary flower ..... dandelion, fig. 28
32. Leaves not divided, long stalked; one to five hairy heads on long hairy stalk ..... nodding hawkweed, fig. 24

33. Leaves opposite 34
33. Most leaves alternate 36

34. Anthers (fig. 99) purple to black-purple; involucral bracts (bracts subtending head) with thickened tip (fig. 105); heads nodding ..... lesser arnica, fig. 20
34. Anthers not purple; involucral bract without abnormal thickened tip; heads erect 35

35. Pappus (hairs at tip of achene) white with barbs (like barb of fish hook); leaves lanceolate to cordate-ovate ..... broadleaf arnica, fig. 19
35. Pappus brownish with side hairs; leaves lanceolate to elliptic ..... clasping arnica, fig. 18

36. Flat-topped flower cluster of three to many small heads; leaves triangular-cordate to arrowhead shape ..... arrowleaf groundsel, fig. 26
36. Spikelike flower cluster of many small heads on branching stalks; leaves oblanceolate, basal leaves with winged stalks, upper leaves sessile to clasping ..... northern goldenrod, fig. 27

37. Petals bent backwards; magenta to lavender or lower part red, upper part yellow 38
37. Petals not bent backwards 39

38. Leaves divided into three segments; flowers with reddish spurs, blades of petals yellow .... western columbine, fig. 60
38. Leaves not divided, all basal; flower without spurs, magenta to lavender ..... pretty shootingstar, fig. 54

39. Flowers blue, blue and white, blue-green, blue-purple, pink, rose-purple, purple, red-green 40
39. Flowers white or greenish-yellow (oxytrope—fig. 47, yarrow—fig. 15, and coastal fleabane—fig. 23) may be pink to pink purple 56

40. Flowers bell-shaped, blue, solitary at end of stem . . . . . mountain harebell, fig. 12
40. Flowers not bell-shaped; if blue, not solitary at end of stem 41

41. Spur present in flower, formed by lower petal . . . . . Alaska violet, fig. 82
41. Spur not present in flower 42

42. Cushionlike plant; leaves linear to lance-linear . . . . . .moss campion, fig. 14
42. Plant not cushionlike; leaves not linear to lance-linear 43

43. Leaves palmately compound or three to five times divided nearly to the base 44
43. Leaves not palmately compound or three to five times divided nearly to the base 47

44. Helmet-shaped, blue-purple flower . . . . . monkshood, fig. 57
44. Flower not helmet-shaped, blue to rose-purple 45

45. Spikelike (fig. 102) flower cluster, flowers blue with white near base, sepals united to form two lips; fruit a pealike pod . . . . . Nootka lupine, fig. 46
45. Flowers not in spikelike cluster, sepals not united to form two lips; fruit not a pealike pod 46

46. Three to five flowers overtopping leaves, blue to pink-purple; margins of leaves divided into narrow, pointed lobes . . . . . northern geranium, fig. 44
46. One to two flowers, pink to rose-purple; margin of leaves with rounded lobes . . . . . nagoonberry, fig. 68

47. Mat-forming plant with opposite, fleshy, densely overlapping leaves . . . . . .purple mountain saxifrage, fig. 74
47. Plant not forming mat; without densely overlapping, opposite, fleshy leaves 48

48. Leaves basal or mostly basal, not divided into segments on opposite sides of a midrib 49
48. Leaves not basal, if basal, then divided into segments on opposite sides of a midrib 51

49. Wedge-shaped leaves in basal rosette; pink to rose-violet petals united into tube at base, limbs flaring horizontally . . . . . wedgeleaf primrose, fig. 55
49. Leaves not wedge-shaped and not basal; flowers not pink to rose-violet, petals not united to form a tube or if tubular, limbs not flaring horizontally 50

50. Kidney-shaped leaves with five to seven palmately arranged veins; greenish to crimson flowers . . . . . .alpine mountain sorrel, fig. 52
50. Leaves obovate to ovate, veins not palmately arranged; flower blue-green . . . . . bluegreen gentian, fig. 42

51. Petals united to form an upper and lower lip 52
51. Petals not united to form an upper and lower lip 53

52. Leaves divided into oblong-ovate segments on opposite sides of a midrib; purple petals united to form spreading, helmet-shaped upper lip and three-lobed lower lip; sepals five toothed . . . . . whorled lousewort, fig. 79
52. Leaves not divided, lanceolate to ovate; red petals united into helmet-shaped upper lip with green end and a lower lip with three sharp teeth; funnel-shaped sepals, with distinct linear lobes . . . . . smallflowered Indian paintbrush, fig. 76

53. Leaves thick and waxy on both surfaces; flowers in flat-topped cluster, petals red-purple ..... roseroot, fig. 30
53. Leaves not thick and waxy on both surfaces; flowers not in flat-topped cluster; petals pink-purple or blue 54

54. Blue, funnel-shaped petals with overlapping lobes; greenish to reddish spots inside ..... broadpetaled gentian, fig. 43
54. Petals not blue and funnel shaped with overlapping lobes 55

55. Most leaves alternate; flowers mostly over 2 cm (3/4 in) in diameter, few to many flowers in spikelike cluster ..... dwarf fireweed, fig. 51
55. Most leaves opposite, upper may be alternate; one to two small, nodding flowers ..... alpine willowherb, fig. 50

56. Leaves broadly ovate and strongly parallel-veined; yellow-green flowers in large terminal spike with long drooping branches ..... false hellebore, fig. 11
56. Leaves not strongly parallel-veined and broadly ovate; flowers not in a spike with long drooping branches 57

57. Flowers in head inflorescence (fig. 105) 77
57. Flowers not in head inflorescence 58

58. Upper stem leaves whorled (fig. 90) 59
58. Upper stem leaves not whorled 62

59. Most leaves basal, divided into three leaflets (fig. 86) 60
59. Leaves not basal and not divided into lobes, simple 61

60. Ovaries (fig. 99) and fruits without hair; leaflets divided into narrow oblong or lanceolate lobes ..... narcissus anemone, fig. 58
60. Ovaries and fruits hairy; leaflets with broad segments ..... northern anemone, fig. 59

61. Alternate leaves below whorl; one to three flowers on long stalk, petals white or pinkish-white . . . Arctic starflower, fig. 56
61. Opposite leaves below whorl; group of small purplish-black flowers, surrounded by white petallike bracts with rose-purple tips . . . . . Swedish cornel, fig. 29

62. Linear (fig. 91) leaves with parallel veins 63
62. Leaves not linear or parallel veined 64

63. Basal leaves flat, forming a rosette; spikelike flower cluster . . . . . northern tofieldia, fig. 10
63. Leaves not flat, not forming a basal rosette; single, showy, creamy-white flower . . . . . alp lily, fig. 9

64. Leaves compound (figs. 85, 86, 87), if simple, divided into lobes 73
64. Leaves simple (fig. 83), not divided into lobes 65

65. Leaves basal or nearly so (may have one or two small leaves on flowering stem) 68
65. Leaves not all basal, stem leaves present 66

66. Leaves opposite; prostrate stems forming a mat; white petals with a deep notch . . . . . Bering chickweed, fig. 13
66. Leaves not opposite; flowering stem erect; petals without notch 67

67. Stem leaves closely crowded together, spirally overlapping; bristlelike hairs in margin; showy white to yellowish-white flowers with yellow or reddish-orange spots . . . . . spotted saxifrage, fig. 72
67. Stem leaves not overlapping, margins smooth and entire; spikelike cluster of small white flowers at top and brownish-green bulblets (small plants) near the base . . . . . alpine bistort, fig. 53

68. Leaves oblanceolate to spatulate with wedge-shaped bases; crowded basal rosette; sepals bent backwards ..... Alaska saxifrage, fig. 73
68. Leaves not oblanceolate to spatulate with wedge-shaped bases; without crowded basal rosette; sepals not bent backward (brook saxifrage has reflexed sepals) 69

69. Four white petals; long, linear fruits ..... alpine bittercress, fig. 31
69. Five or more petals; fruit not long and linear 70

70. Thick, cordate (fig. 98) to kidney-shaped leaves with rounded toothed margins 71
70. Leaves not thick, elliptic to cordate with entire margins ..... northern grass-of-Parnassus, fig. 71

71. One to two large flowers with numerous yellow stamens that form a conspicuous yellow center ..... mountain marshmarigold, fig. 61
71. Four or more flowers on a long naked stalk, without a conspicuous yellow center 72

72. Sepals bent backwards; separate petals with narrow bases, margins entire ..... brook saxifrage, fig. 75
72. Sepals not bent backwards; petals united at base, margins wavy ..... deercabbage, fig. 49

73. Leaves fanshaped, twice divided ..... luetkea, fig. 66
73. Leaves not fanshaped or twice divided 74

74. Ten or more ovate leaflets, hairy on both sides, edges rolled upward ..... northern oxytrope, fig. 47
74. Less than 10 leaflets, without hair on both sides, edges not rolled upward 75

75. Leaves mostly on the stem, plant strongly odoriferous ..... Sitka valerian, fig. 80
75. Leaves mostly basal; plant not odoriferous 76

76. Long stalked leaves with sharply toothed leaflets; mostly two-flowered; five petals . . . . . .fernleaf goldthread, fig. 62
76. Short-stalked leaves with smooth-margined leaflets; several flowers in a flat-topped cluster; four petals . . . . . umbelflowered bittercress, fig. 32

77. Leaves thick, leathery, ovate to kidney shaped, arising directly from the rhizome (fig. 107) . . . . . .Arctic sweet coltsfoot, fig. 25
77. Leaves not thick, leathery, and not ovate to kidney shaped 78

78. Leaves divided two to four times; heads (fig.105) in flat-topped cluster with white to pink ray flowers; plant strongly scented . . . . . northern yarrow, fig. 15
78. Leaves simple; heads not in flat-topped cluster or, if in flat-topped cluster, without ray flowers; plant not strongly scented 79

79. Single head with both ray and disk flowers 80
79. Heads with disk flowers only 81

80. Plant woolly, with long dark hairs; stem leaves linear to lanceolate; flower head dense, woolly . . . . . .Alaska fleabane, fig. 22
80. Plant not woolly, more or less hairy; stem leaves lanceolate to oblong; flower head not dense, woolly . . . . . coastal fleabane, fig. 23

81. Involucral bracts (bracts subtending head) sharp pointed, the thin, dry, membraneous terminal portion brownish-green to blackish-green throughout . . . . . alpine pussytoes, fig. 16
81. Involucral bracts obtuse to rounded, with the terminal portion being dirty tan or often whitish . . . . . .pussytoes, fig. 17

Figure 1

Equisetum arvense L.
(eh kwa se tum) (ar ven se)
Meadow horsetail. EQUISETACEAE.

Rhizome dark brown to nearly black, incompletely brown felted; stems annual and of two types; fertile stem 3 to 20 cm (1-3/16 to 8 in) tall, yellowish to flesh colored, grows in early spring and soon withers; sheath (tubular envelope) 10 to 20 mm (3/8 to 3/4 in) long with 5 to 13 lance-linear, brown teeth; terminal cone-shaped spore-producing structure on a stalk much longer than subtending sheath; vegetative stem with furrows, roughened with small rounded dots of silica; 10 to 50 cm (4 to 20 in) tall with a central cavity about 7 mm (1/4 in) diameter; internodes 3 to 18 mm (1/8 to 10/16 in) long; sheaths with three to eight dark brown teeth; lateral branches in regular whorl, not branched again.

HABITAT: Widely distributed in moist areas from sea level to alpine. Alpine—heaths, moist meadows, rocky slopes.

Equisetum variegatum Schleich. (eh kwa se tum) (var e ga tum) (variegated scouring rush) also can be found. Stems evergreen, all alike, with 5 to 12 ridges, each ridge with two rows of pimplelike structures; sheath with black teeth with conspicuous thin, white, transparent margins; apical cone-shaped spore-producing structure on short stalk.

HABITAT: Widely distributed in moist areas from sea level to alpine. Alpine—moist meadows, heaths, rocky slopes.

USES: The peeled stems, base of the plant, roots and tubers were eaten, either raw or cooked, by the Indians. Young, fertile stems were clipped at ground level just before the cone scales loosened. The outer skin was peeled and the inner sprout was boiled like asparagus. The water was changed several times.

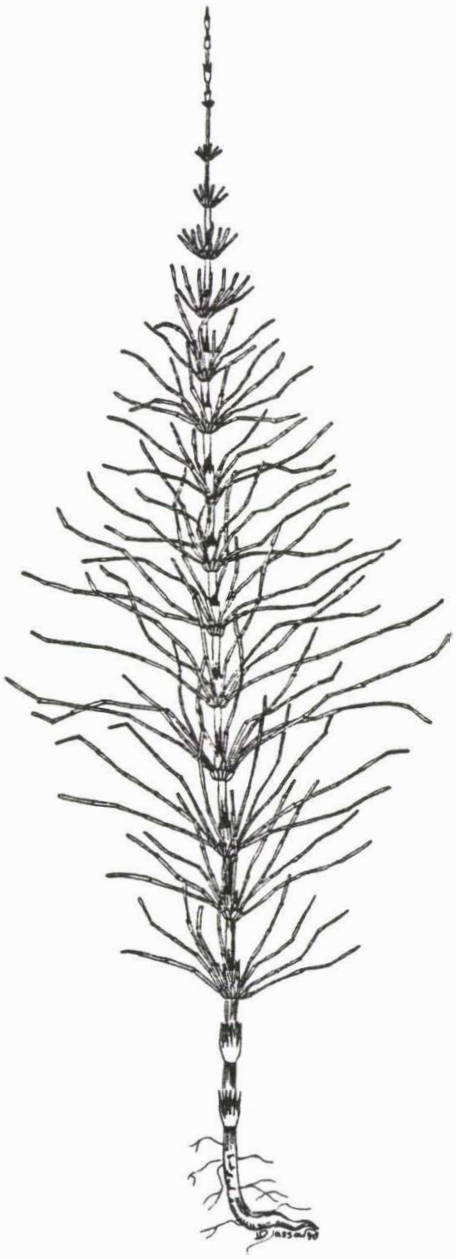

Figure 1—Meadow horsetail, *Equisetum arvense* L.

Vegetative stems were dried, ground into a powder, then used as a thickening or as mush. A tea has been used as a diuretic in kidney and dropsical disorders. Avoiding this plant as food is wise because the horsetail group has a reputation of poisoning grazing animals by producing aconitic acid, a powerful nerve poison.

Figure 2

Lycopodium annotinum L.
(lik a po de um) (an no tee num)
Stiff clubmoss. LYCOPODIACEAE.

Aboveground horizontal stem is long, creeping, and forked with erect, simple or paired aerial branches, 5 to 25 cm (2 to 10 in) long; leaves firm, stiff, with erect spinelike tips, eight ranked, spreading, mostly 4 to 10 mm (3/16 to 3/8 in) long; nonstalked cone-shaped spore-producer borne singly on end of branches; spore-producing leaves ovate, with nongreen, thin, dry, membranous margins.

HABITAT: Widely distributed from sea level to alpine.
Alpine—rocky slopes and ridges, boggy slopes, heaths.

Lycopodium alpinum L. (lik a po de um) (al pe num) (alpine club-moss) also may occur. Fertile branches terminated by nonstalked, spore-producing structures; branches erect, flat, somewhat fan-shaped; leaves four ranked; leaves of lower surface trowel-shaped, not overlapping, upper surface leaves scalelike, overlapping.

HABITAT: Alpine—heaths, meadows, slopes flooded by water from melting snow.

Lycopodium clavatum L. (lik a po de um) (kla va tum) (common clubmoss) also occurs but is less common. Fertile branches are terminated by two to three cone-shaped spore-producing structures on 0.5- to 15-cm (3/16- to 6-in)-long stalks; leaves 10 ranked, tip of leaf commonly twisted or bent.

HABITAT: Subalpine and alpine—woods, rocky soils, heaths.

Lycopodium sitchense Rupr. (lik a po de um) (sit chen se) (Alaska clubmoss) also may occur. Very similar to *L. alpinum* but lacks the row of trowel-shaped leaves on lower surface, leaves are all alike, five to six ranked; stems circular in cross section.

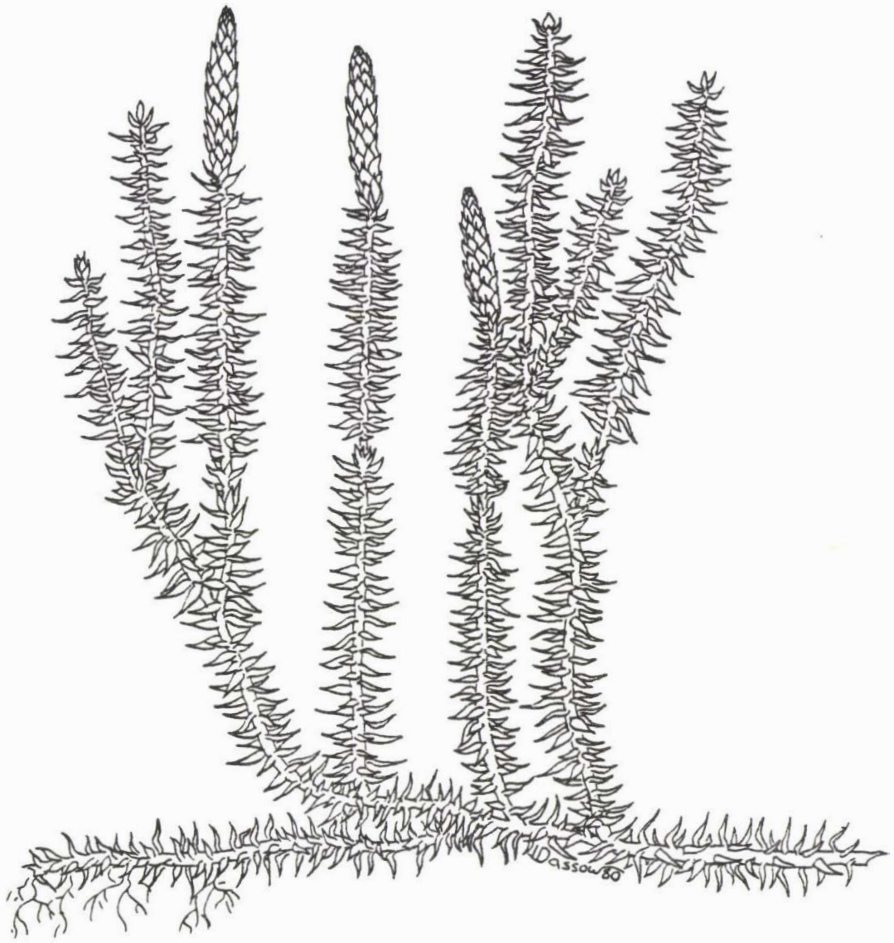

Figure 2—Stiff clubmoss, *Lycopodium annotinum* L.

HABITAT: Subalpine and alpine—woods, meadows, heaths, rocky slopes.

USES: American Indians, as well as Europeans, have used clubmoss spores as a powder to stop nosebleed and bleeding wounds. The spores have been used to increase urine flow and to treat severe diarrhea. The spores were once used as a fine baby powder and as an inflammable powder for flash photography. Scandinavians used clubmoss for ornamental Christmas wreaths and greens. Some clubmosses contain a poisonous alkaloid that can cause pain in the mouth, vomiting, and diarrhea.

Figure 3

Lycopodium selago L.
(lik a po de um) (seh la goh)
Fir clubmoss. LYCOPODIACEAE.

Rhizomes slender, branched; simple or dichotomously branched, erect, aerial stems, 2 to 30 cm (3/4 to 12 in) long; bright yellowish-green leaves, eight ranked, all about alike, lying flat or widely spreading; green to yellowish sporangia (spore-producing structure) in axil of leaves in zones alternating with vegetative leaves.

HABITAT: Subalpine and alpine—woods, heaths, dry meadows, cliffs, rocky slopes, windblown ridgetops.

USES: Spores were used as a powder to stop bleeding. The spores were once used as a fine baby powder and as an inflammable powder for flash photography. Fir clubmoss contains a poisonous alkaloid that can cause pain in the mouth, vomiting, and diarrhea. The plant was used by tribes along the Pacific coast to produce intoxication, which was induced by chewing the stems and swallowing the juice.

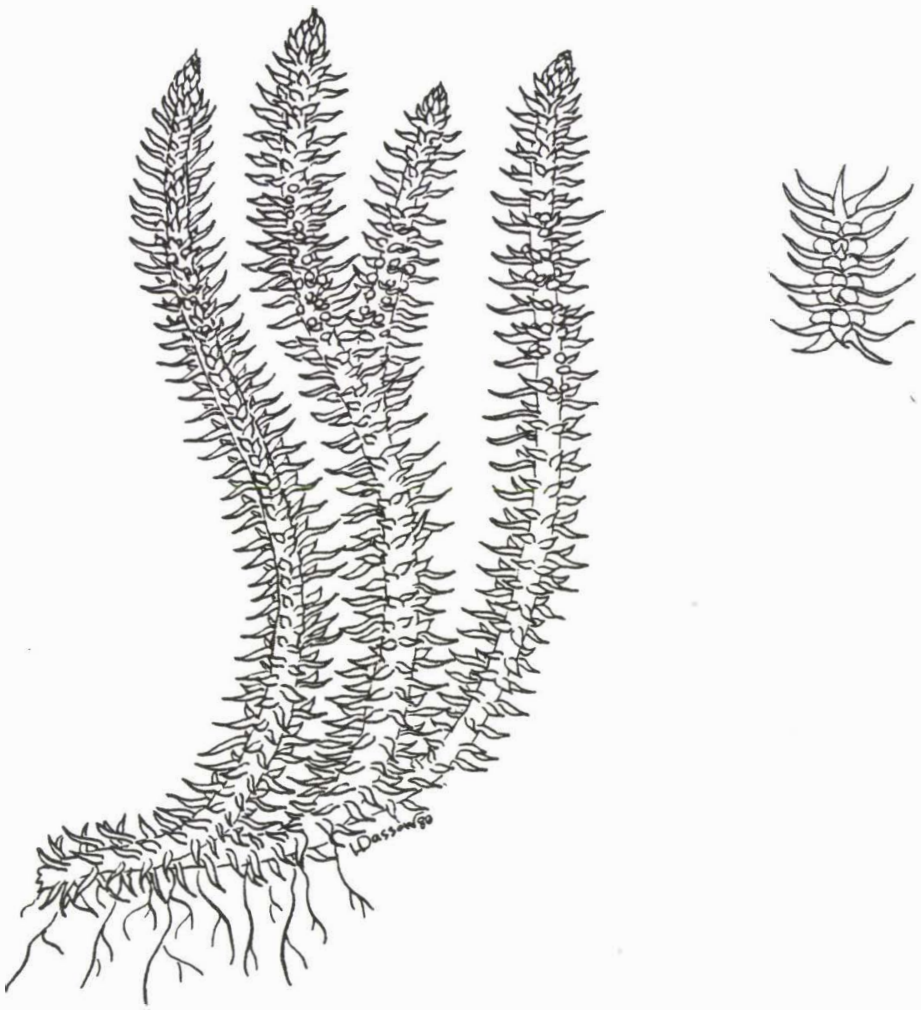

Figure 3—Fir clubmoss, *Lycopodium selago* L.

Figure 4

Athyrium filix-femina (L.) Roth.
(a the re um) (fee leks fe mi nah)
Lady fern. POLYPODIACEAE.

Rhizome short, scaly, covered with preceding seasons' persistent flattened petiole bases; forms large crown of fronds (leaves), 20 to 130 cm (8 to 52 in) tall; leaf stalk coarse, black basally, scaly near the leaf; leaf lanceolate to lance-elliptic, two to three times divided with 20 to 35 pairs of pinnae, the lowest primary segments shorter than the middle segments; oblong to horseshoe-shaped spore-producing structure on lower surface of leaf.

HABITAT: Widely distributed from sea level to alpine. Subalpine and alpine—woods, thickets, meadows, streambanks.

USES: The roots were baked. After roasting and peeling, the centers of the rhizomes were eaten. The rhizomes were boiled and the tea was drunk to ease body pains. Powdered dry root was dusted over open sores to heal them. Young "fiddleheads" (cut before they have reached 23 cm [9 in]) were boiled or fried in butter.

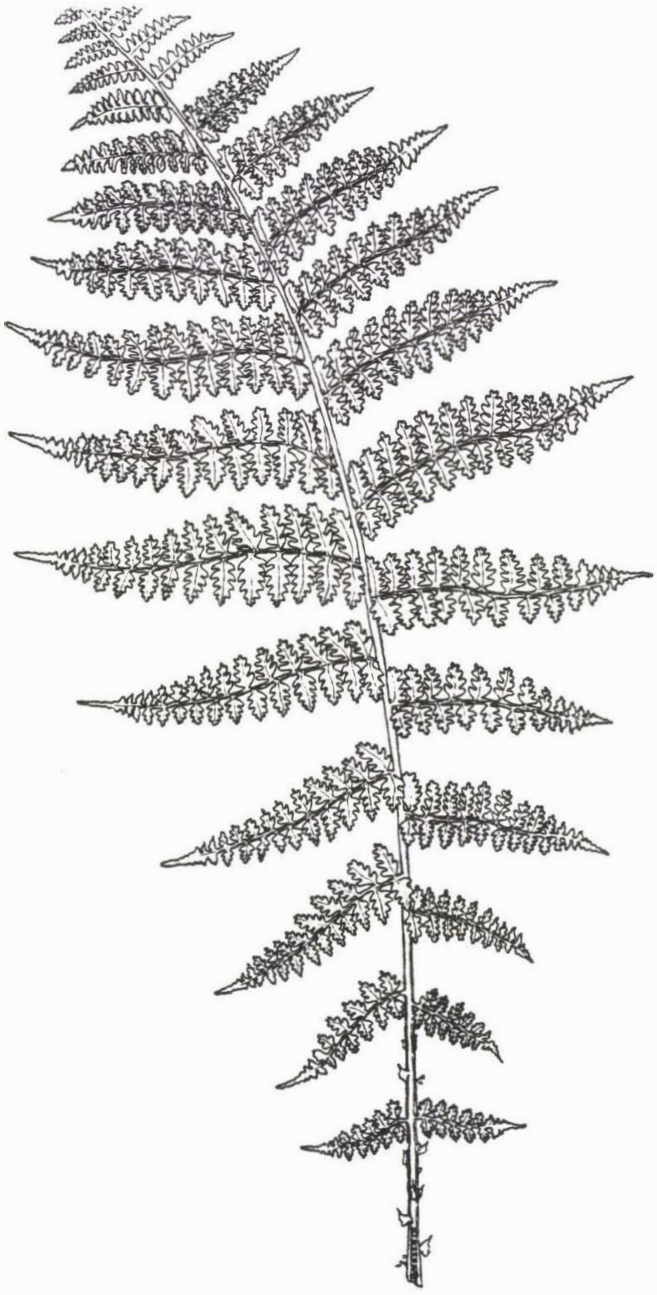

Figure 4—Lady fern, *Athyrium filix-femina* (L.) Roth.

Figure 5

Cryptogramma crispa (L.) R. Br.
(kryp toe gram ah) (cris pah)
Parsley fern. POLYPODIACEAE.

Rhizomes short, compactly branched, clothed with scales of old leaf bases; leaves of two types, fertile and vegetative; fertile leaves longer than vegetative, about the same number of fertile pinnae as vegetative pinnae, ultimate segments linear to narrowly oblong, margins roll inward covering spore-producing structures; vegetative leaves two to three times divided, ovate to ovate-lanceolate blade, 5 to 11 broad, short pinnae, ultimate segments toothed.

HABITAT: Subalpine and alpine—thickets, woods, rocky outcrops, talus slopes.

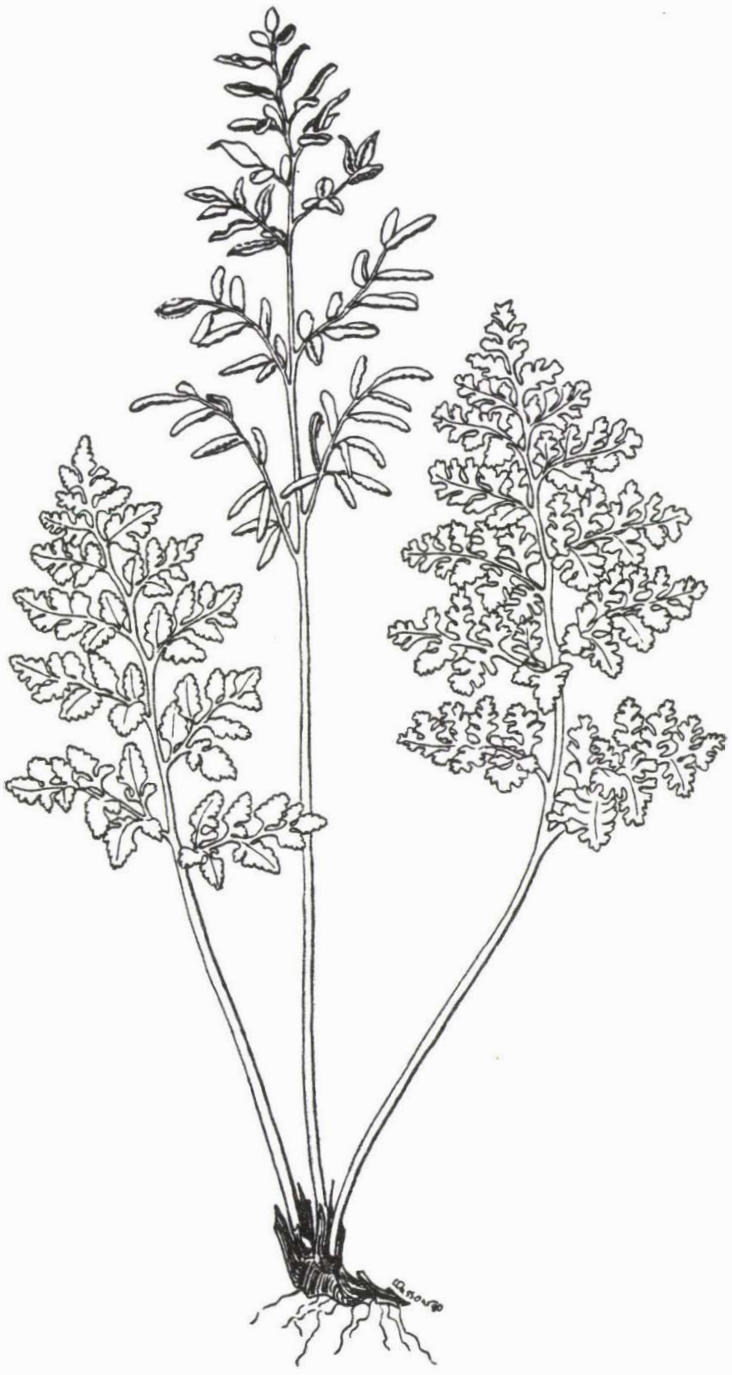

Figure 5—Parsley fern, *Cryptogramma crispa* (L.) R. Br.

Figure 6

Cystopteris fragilis (L.) Bernh.
(si stop ter is) (fra jee lis)
Fragile fern. POLYPODIACEAE.

Rhizomes short, thick, densely covered with ovate, sharp-pointed, thin, dry, often translucent scales; fronds erect, spreading, 4 to 16 cm (1-1/2 to 6-1/4 in) tall; leaf stalk one-half as long as blade or equal to blade, scaly and brownish at base, scaleless and shiny green or straw-colored above; blade lanceolate to elliptic, two to three times divided, veins extending to marginal teeth, round spore-producing structures borne along veins on lower surface.

HABITAT: Widely distributed from sea level to alpine.
Alpine—thickets, woods, meadows, heaths, rocky outcrops, rocky slopes.

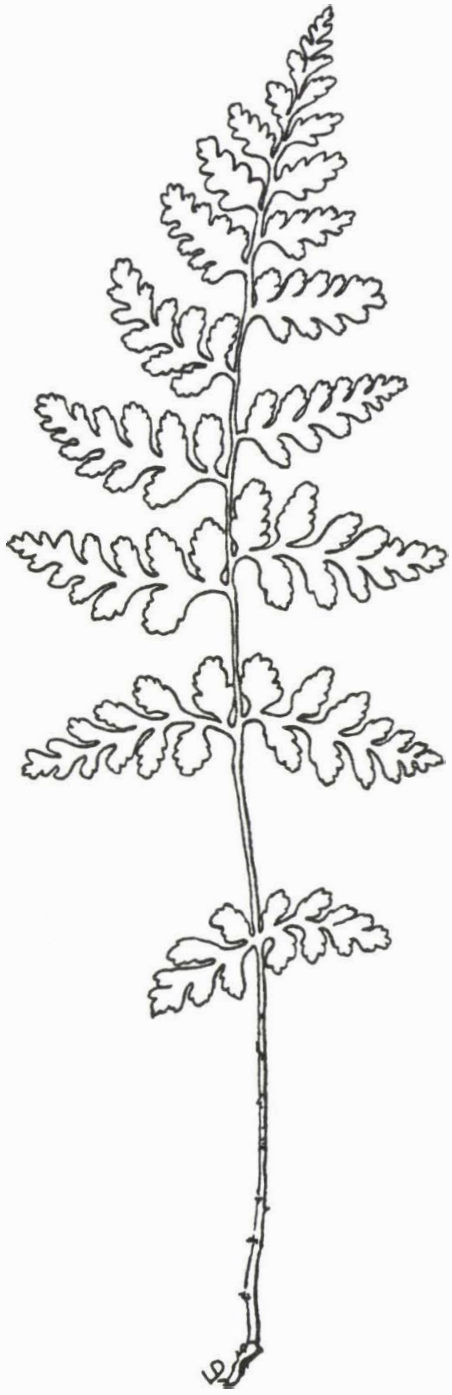

Figure 6—Fragile fern, *Cystopteris fragilis* (L.) Bernh.

Figure 7

Dryopteris austriaca (Jacq.) Woynor ex Schinz & Thell.
(dri op te ris) (os tree a cah)
Spreading woodfern. POLYPODIACEAE.

Rhizome thick, stout, covered with old leaf bases; leaf stalk (petiole) dark brown basally, green to straw-colored above, scaly almost to the blade, shorter than the blade; blade three times divided, the lowermost primary segment (pinna) commonly larger and broader than other pinnae, upper innermost pinnules of basal pair of pinnae much shorter than lower pinnules; rounded spore-producing structure borne along veins on the lower surface of the blade.

HABITAT: Widely distributed from sea level to alpine. Subalpine and alpine—moist woods, thickets, streambanks, meadows.

USES: Young fronds edible in spring. The lower 1 inch of frond stalk (underground on rootstock) is edible and available from early spring through fall. The stalk bases are nutritious and have a nutty flavor. Usually roasted and peeled. Rhizomes were gathered during fall and winter, baked, peeled, and eaten. Fresh root pulp (pounded root) was put on cuts. Leaves were soaked for several days and the liquid was used for a hair wash.

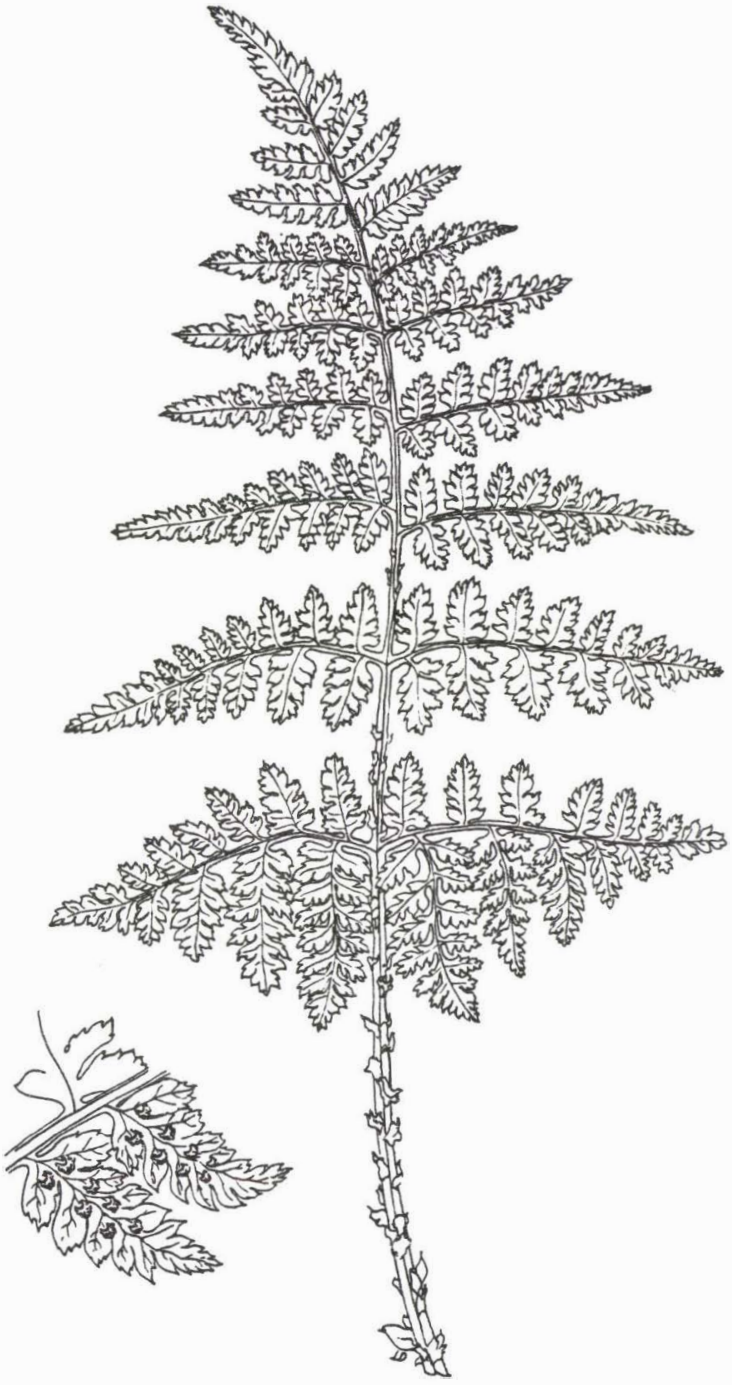

Figure 7—Spreading woodfern, *Dryopteris austriaca* (Jacq.) Woynor ex Schinz & Thell.

Figure 8

Fritillaria camschatcensis (L.) Ker-Gawl.
(fre teel lar ee ah) (kam chat ken sis)
Indianrice. Chocolate lily. LILIACEAE.

Twenty to 60 cm (8 to 24 in) tall; underground bulbs composed of several large fleshy scales and numerous ricelike bulblets; leaves in two to three whorls, 3 to 9 cm (1-3/16 to 3-9/16 in) long, 0.7 to 3 cm (1/4 to 3/16 in) wide; flowers nodding, one to six, close together on short stalks, brown, strong odor.

HABITAT: Widely distributed from sea level to alpine. Subalpine and alpine—bogs, meadows, heaths.

USES: The bulbs, which contain starch and sugar, were a staple food of the natives. Bulbs were dug in the fall and eaten raw, boiled, or dried. The taste was bitter.

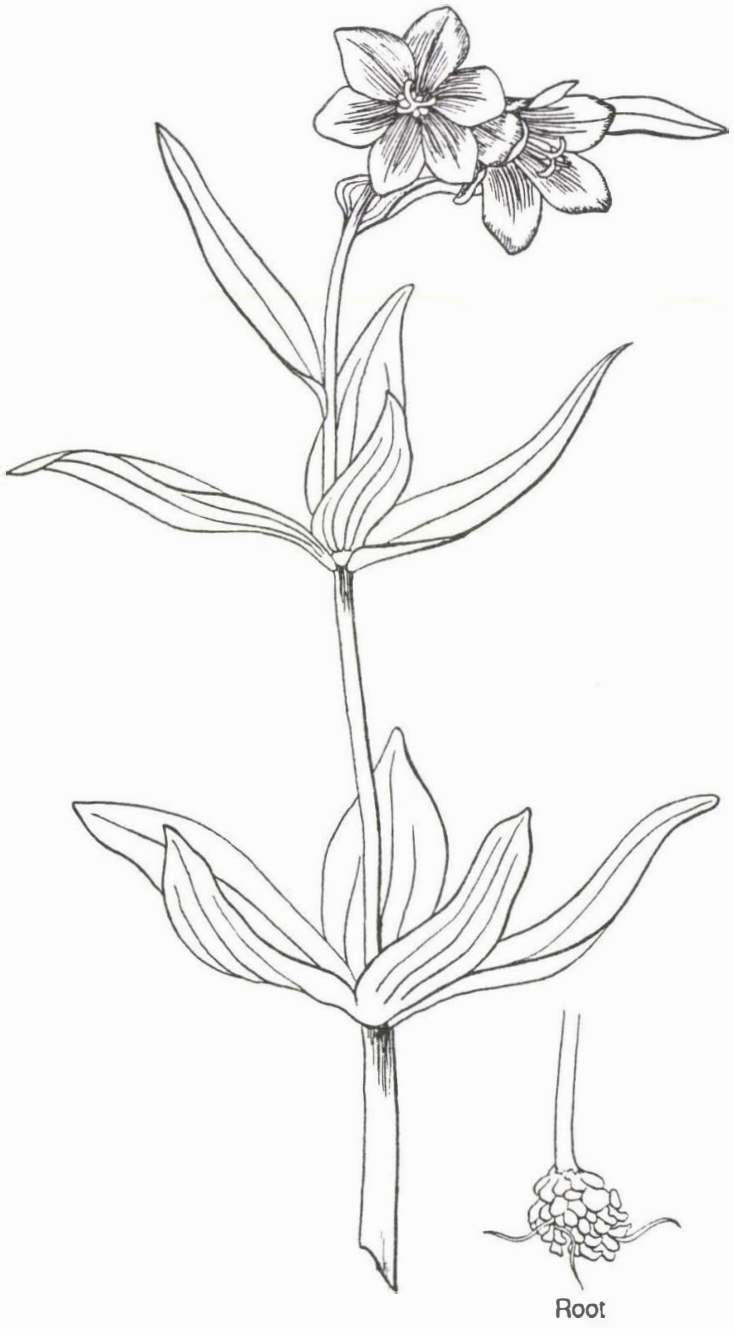

Figure 8—Chocolate lily, *Fritillaria camschatcensis* (L.) Ker-Gawl.

Figure 9

Lloydia serotina (L.) Wats.
(loy dee ah) (se ro tee nah)
Alp lily. LILIACEAE.

Oblong bulb covered with gray-brown fibrous coat; stem slender, erect, 5 to 15 cm (2 to 6 in) tall; basal leaves 2 to 8 cm (3/4 to 3-1/4 in) long, 1 to 2 mm (1/16 in) wide; one to three alternate, linear, stem leaves, reduced in size upward; mostly a single, showy, terminal flower; purple-veined sepals and petals, creamy-white within and tinged with rose on outside; oval capsule, 7 to 9 mm (1/4 to 3/8 in) long; reddish-brown seeds, strongly flattened, straight along one margin.

HABITAT: Alpine—rocky exposed ridges, high peaks. Early flowering snow flush species.

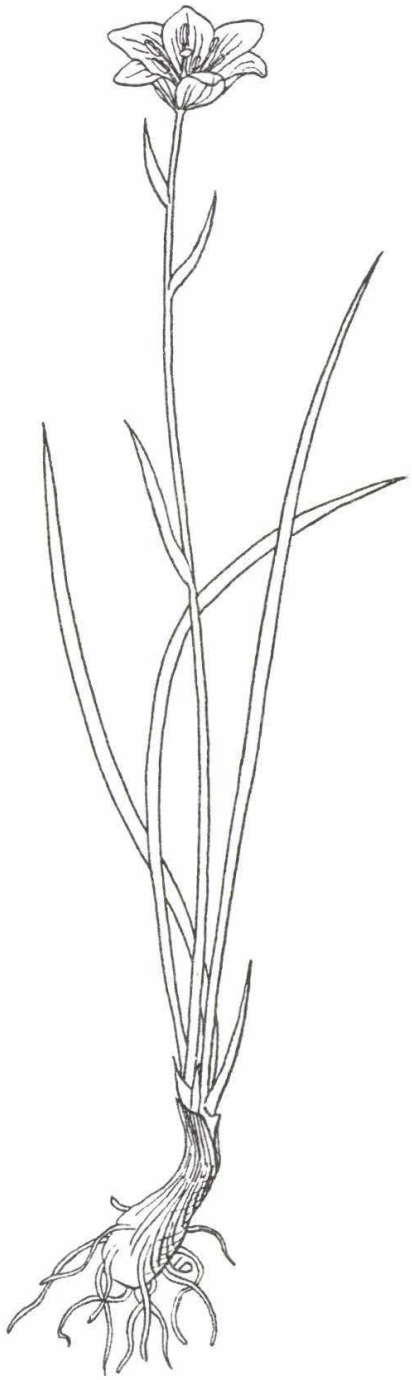

Figure 9—Alp lily, *Lloydia serotina* (L.) Wats.

Figure 10

Tofieldia coccinea Richards.
(toe feel dee ah) (kok sa neh ah)
Northern tofieldia. LILIACEAE.

Tufted stems grow from slender yellowish roots, 4 to 10 cm (1-9/16 to 4 in) tall; flat, yellow-green basal leaves, broadly linear to spatulate, 0.8 to 2.5 cm (5/16 to 1 in) wide, 1 to 5 cm (3/8 to 2 in) long, densely tufted, forming an ascending rosette, bases of leaves thin, dry, transparent, margins entire; erect, slender, leafless flowering stalk with 2 to 20 flowers; sepals and petals alike, cream-white tinged with red, oblong or narrowly obovate; reddish seeds faintly or bluntly appendaged at one end.

HABITAT: Alpine—dry stony areas, heaths.

Figure 10—Northern tofieldia, *Tofieldia coccinea* Richards.

Figure 11

Veratrum eschscholtzii Gray
(veh ra trum) (es sholts ee i)
False hellebore. American white hellebore. LILIACEAE.

Coarse, leafy-stemmed plant that grows from a thickened, short rootstock; roots numerous, fibrous, coarse; stem 100 to 250 cm (3-1/2 to 8-1/2 ft) tall, unbranched, almost completely hidden by leaves; three-ranked alternate leaves, entire margins, strongly parallel veined, broadly ovate 15 to 30 cm (6 to 12 in) long, 8.5 to 15 cm (3 to 6 in) wide, folded lengthwise, smooth, hairless above, dense, short hair below; numerous yellow-green flowers, about 13 mm (1/2 in) in diameter; large terminal panicle (fig. 104) with long drooping branches.

HABITAT: Widely distributed from sea level to alpine. Subalpine and alpine—moist open woods, moist meadows, bogs.

USES: Contains several poisonous alkaloids that cause vomiting, purging, general paralysis, and death from asphyxia; paralyzes the heart and spinal cord. Symptoms include headache, defective vision, faintness, salivation, purging, abdominal pain, muscular weakness, slow pulse, lower body temperature, general paralysis, tremors, spasms, and convulsions. Hellebore has been used medically as a cardiac depressant. The plants are dried, powdered, and sold as the garden insecticide, hellebore. All parts of the plant are too dangerous to use.

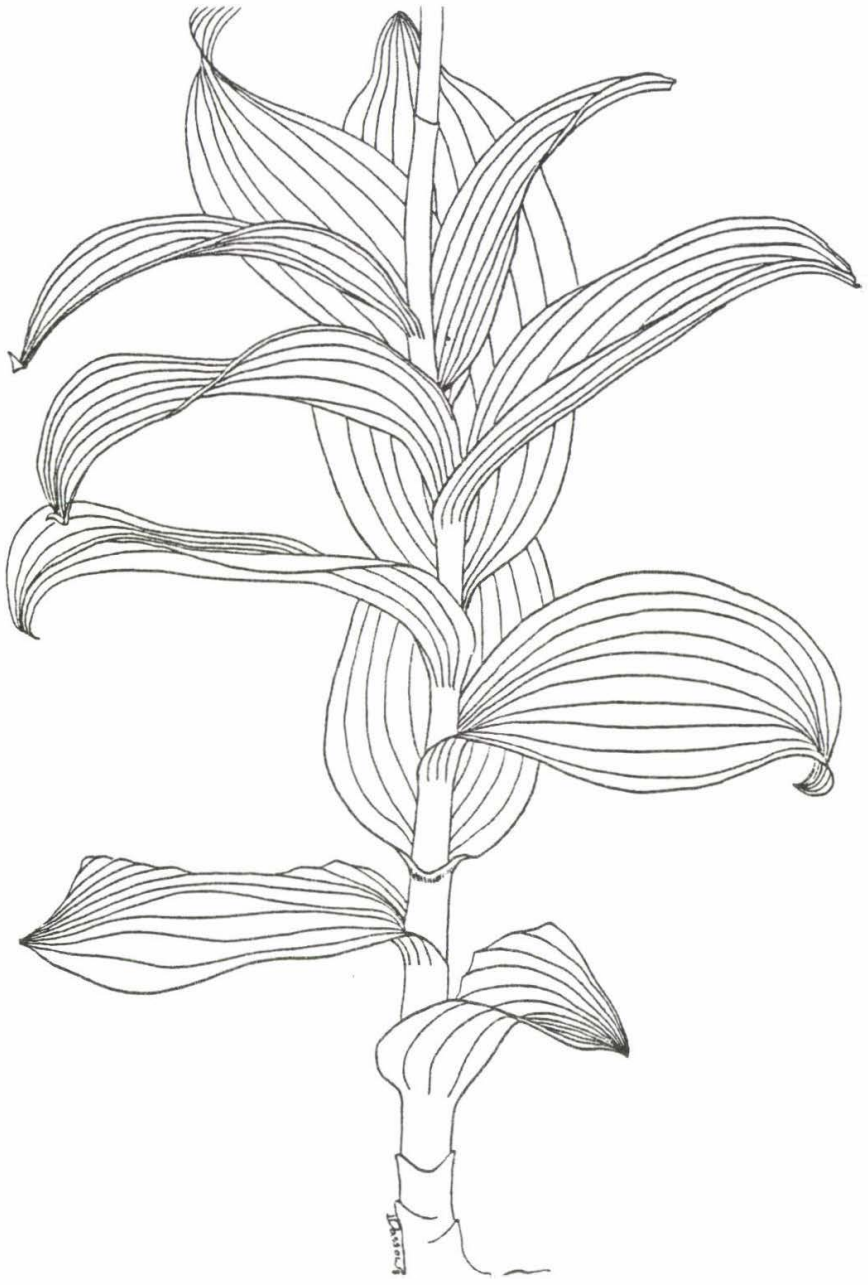

Figure 11—False hellebore, *Veratrum eschscholtzii* Gray.

Figure 12

Campanula lasiocarpa Cham.
(kam pan yoo lah) (lah ze o kar pah)
Mountain harebell. CAMPANULACEAE.

Slender rhizome; usually one ascending to erect stem, 2 to 20 cm (3/4 to 8 in) tall, sparingly hairy; leaves mainly basal with long, slender, ciliated, leaf stalks, blades elliptic to oblanceolate, 1 to 6 cm (3/8 to 2-3/8 in) long, 0.2 to 1.3 cm (1/16 to 1/2 in) wide, hairless on both surfaces, margins entire to sharp-toothed; 3 to 10 stem leaves, reduced in size upward; large blue bell-shaped flower at end of stem; sepals hairy, united to form a purple tube with slender, sharp-pointed, lanceolate lobes, margins toothed; petals bell-shaped, 1.5 to 3.5 cm (9/16 to 1-3/8 in) long, lobes ovate-deltoid, about one-third length of tube; stamens included, ovary white, hairy; capsule oblong, hairy.

HABITAT: Subalpine to alpine—muskegs, meadows, rock slopes, rock outcrops.

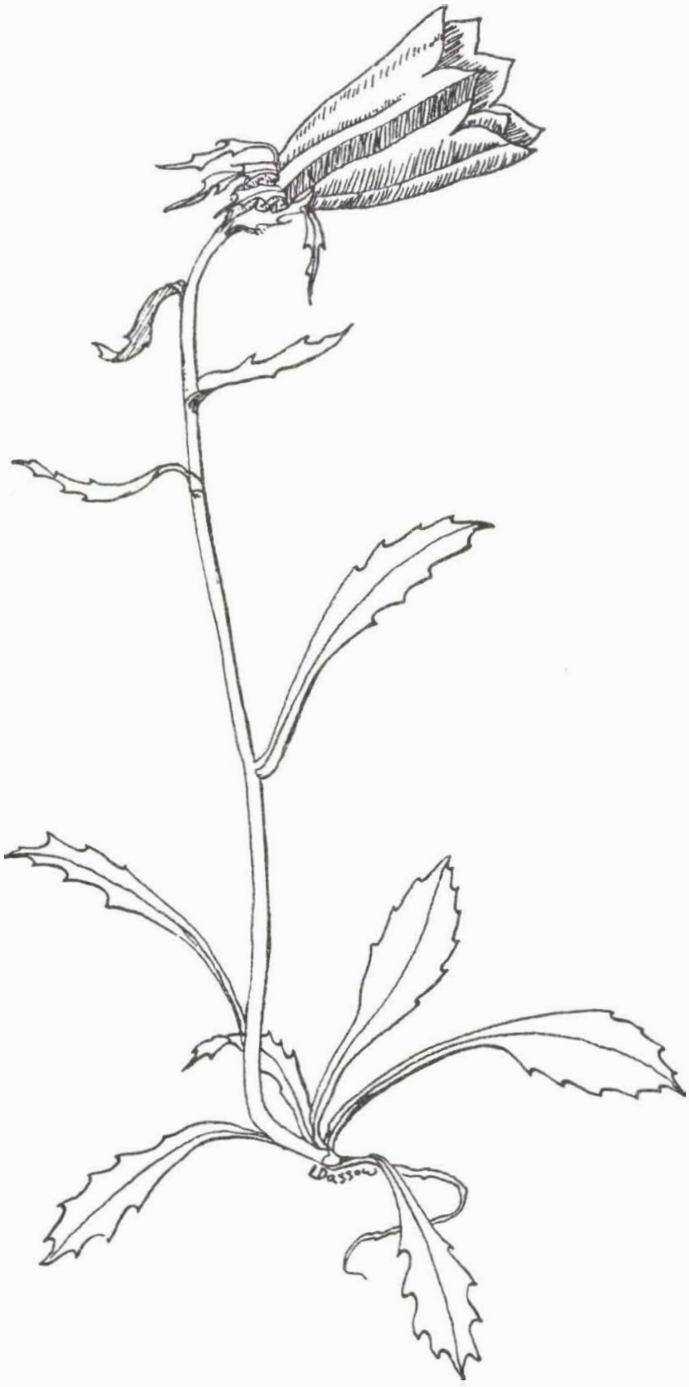

Figure 12—Mountain harebell, *Campanula lasiocarpa* Cham.

Figure 13

Cerastium beeringianum Cham. & Schlecht.
(seh ras tee um) (beh rin ge ah num)
Bering chickweed. CARYOPHYLLACEAE.

Slender taproot; loose to dense mats forming from prostrate trailing stems; flowering stem erect to reclining on the ground, 10 to 25 cm (4 to 10 in) tall with fine spreading hairs throughout; lanceolate to oblong-lanceolate, nonstalked, opposite leaves, 0.3 to 3.8 cm (1/8 to 1-1/2 in) long, hairy on both surfaces, single vein, margins entire; three to six flowers at end of stem, slender flower stalk with dense hair; green sepals, 3 to 7 mm (1/8 to 1/4 in) long, with thin, dry, transparent margin, inner sepals broader than outer sepals; white petals longer than sepals, obovate, tip with a deep notch; capsule cylindrical, seeds yellowish to brownish.

HABITAT: Subalpine and alpine—meadows, open slopes, gravel areas, cliffs, heaths.

USES: Young growing shoots were cooked as a potherb.

Figure 13—Bering chickweed, *Cerastium beeringianum* Cham. & Schlecht.

Figure 14

Silene acaulis L.
(see leh neh) (a kau lis)
Moss campion. CARYOPHYLLACEAE.

Densely matted, up to 30 cm (12 in) in diameter; lower part of stem persistent, stems highly branched, erect or ascending, covered with persistent leaves; closely crowded, overlapping, 5 to 10 mm (2/8 to 1/2 in) long, flat leaves, linear to lance-linear, both surfaces smooth, hairless, stiff hairs in margins; erect, single showy flower; deep rose to purple tubular sepals with five triangular teeth; pink to pink-purple petals, united at base, blade notched at the tip.

A mossy, cushionlike plant with numerous small flowers and an extensive woody taproot that enables it to live where the soil shifts constantly, such as dry ridges.

HABITAT: Alpine—exposed rocky or gravelly areas, ridges, heaths.

USES: Icelanders ate boiled moss campion flavored with butter.

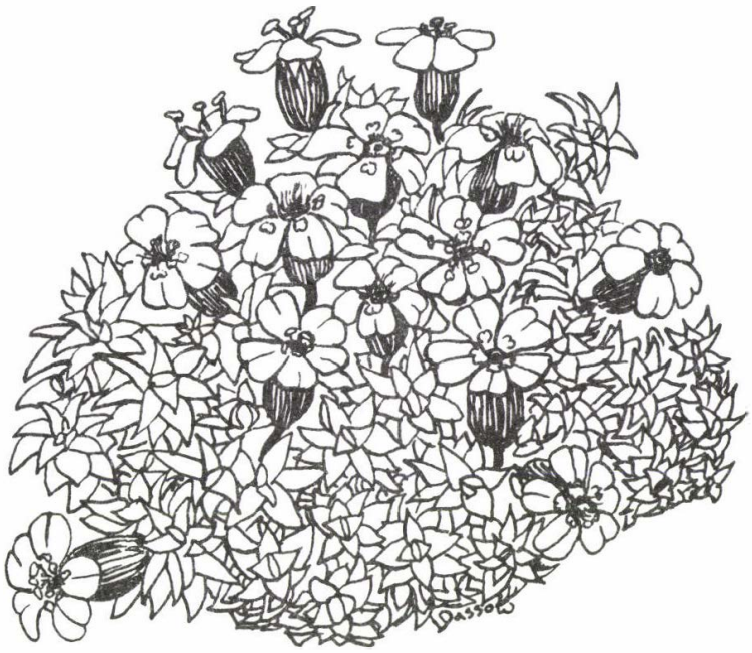

Figure 14—Moss campion, *Silene acaulis* L.

Figure 15

Achillea millefolium ssp. *borealis* (Bong.) Breitung
(ah kil eh ah) (mil la fo lee um) (bo re ah lis)
Northern yarrow. COMPOSITAE.

Stout, horizontal rhizomes; stem ascending to erect, 20 to 100 cm (8 to 40 in) tall, simple or branched from the upper part, long woolly hair throughout, strongly scented; alternate leaves, finely divided (two to four times), central area nearly as wide as thick; leaves 2 to 20 cm (3/4 to 8 in) long, reduced in size upward; flat-topped plant bearing numerous white to pink flowers in small heads often clustered at about the same height along the main stem; three to five white to pink-purple ray flowers, 2 to 4 mm (1/16 to 3/16 in) long, three toothed; 10 to 20 tubular disk flowers; involucral bracts 4 to 6 mm (3/16 to 1/4 in) long, overlapping margins light to dark brown; achenes 1 to 2 mm (1/16 in) long, smooth, flattened, beakless; no pappus.

HABITAT: Widely distributed from sea level to alpine. Subalpine and alpine—meadows, rocky areas, gravelly slopes, rocky outcrops, heaths.

USES: According to legend, common yarrow was used by Achilles to stop the bleeding wounds of his soldiers, hence the name "military herb." Yarrow tea has a long history of use for lack of appetite, stomach cramps, flatulence, gastritis, enteritis, gallbladder and liver problems, and internal hemorrhage, particularly in the lungs. Fresh yarrow juice acts as a general tonic and as a remedy for various forms of bleeding. Tea made from boiled roots was used for stomach problems and headaches and as a lotion for sore eyes. Leaves were soaked in water and used as a hair wash. CAUTION: Extended use of yarrow may make the skin sensitive to light.

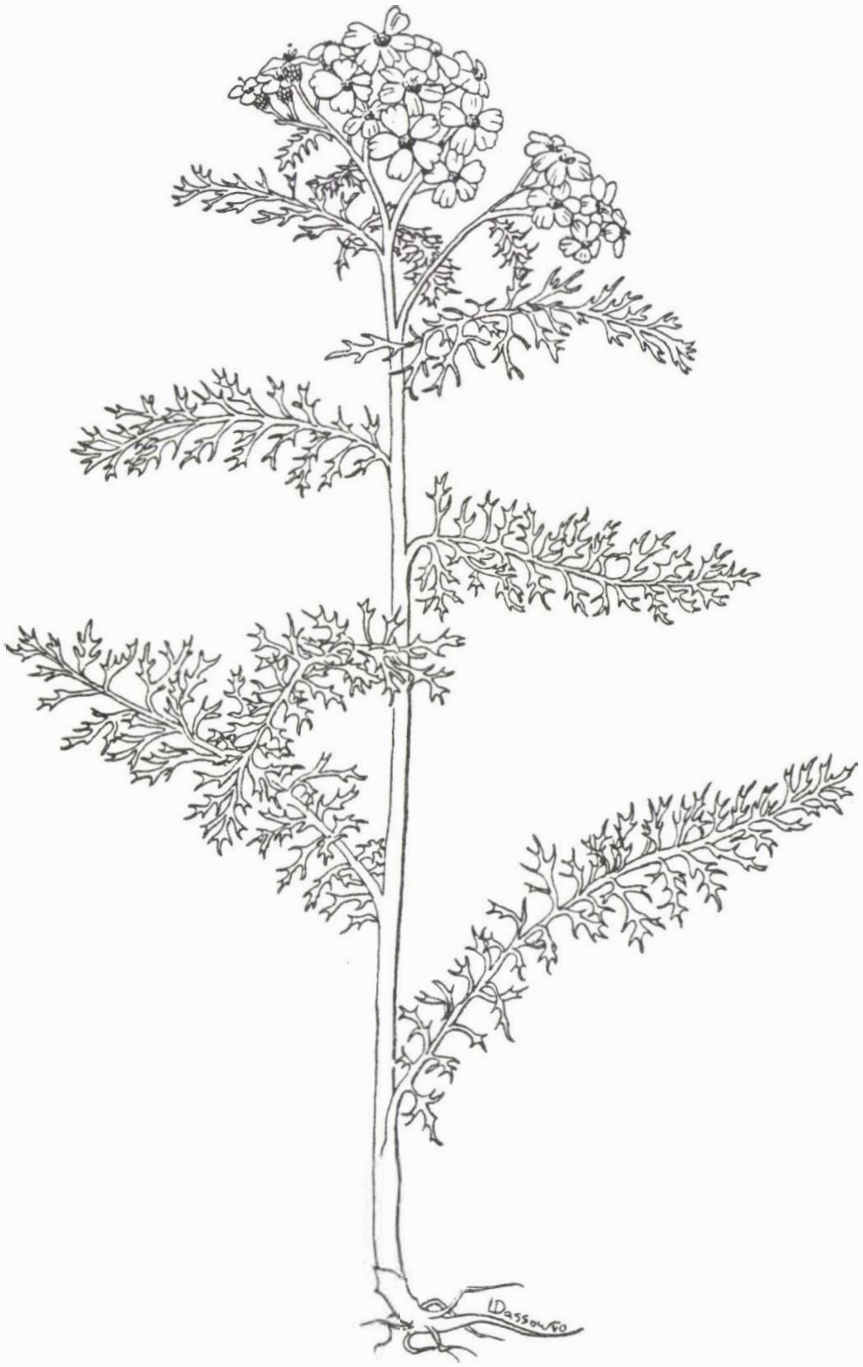

Figure 15—Northern yarrow, *Achillea millefolium* ssp. *borealis* (Bong.) Breitung.

Figure 16

Antennaria alpina (L.) Gaertn.
(an ten nair ee ah) (al peh nah)
Alpine pussytoes. COMPOSITAE.

Several to many leafy offshoots, 2 to 23 cm (15/16 to 9 in) tall; basal leaves numerous, oblanceolate to spatulate, 0.5 to 4 cm (3/16 to 1-9/16 in) long, 0.1 to 0.5 cm (1/16 to 3/16 in) wide, non-stalked, more or less hairy on both surfaces; 3 to 7 stem leaves, woolly hair on both surfaces, narrowly oblanceolate to linear, 5 to 12 mm (3/16 to 7/16 in) long with broad, flat, thin, dry, membranous tips; 2 to 9 heads, heads with female flowers only (flowers with pistils and no stamens) or with male flower only; female flower involucre (fig. 105), 4 to 8 mm (3/16 to 5/16 in) long, bracts closely overlapping, greenish-brown, moderately woolly at base, dry, thin membranous tip, blackish-green, margins irregular as if chewed; pappus of numerous capillary bristles; male flower involucre smaller, 4 to 5 mm (3/16 in) long, light brown, tips obtuse, usually spreading, with few flattened club-shaped or barbellate bristles.

HABITAT: Subalpine and alpine—meadows, tundra, heaths, dry slopes.

Figure 16—Alpine pussytoes, *Antennaria alpina* (L.) Gaertn.

Figure 17

Antennaria umbrinella Rydb.
(an ten nair ee ah) (um bri nel lah)
Pussytoes. COMPOSITAE.

Mat-forming plants, with slender stolons bearing short offshoots, 5 to 25 cm (2 to 10 in) in diameter; flowering stem erect, 18 to 20 cm (3-1/8 to 8 in) tall, hairs white to gray, intertangled; basal leaves oblanceolate, 2 to 5 mm (1/16 to 3/16 in) wide, 10 to 22 mm (3/8 to 13/16 in) long, moderately hairy above, densely hairy below, hairs grayish, woolly; 8 to 12 stem leaves, linear-oblanceolate near base to linear above, single veined, with brown, thin, dry membranous tips; three to eight flower heads; involucre bowl shaped, oblanceolate, more or less spreading tips, margins thin, dry, membranous, dirty brownish-green to pale tan, inner bracts almost white, margins irregular as if chewed; pappus bristles slender, barbellate, white, 4 to 5 mm (3/16 in) long; achenes pale brown to buff, smooth, hairless. *Antennaria umbrinella* is transitional and approaches *A. alpina* in bract shape, color, and stature. The same illustration has been used to depict both species.

HABITAT: Subalpine and alpine—open woods, dry slopes.
Antennaria monocephala DC. (an ten nair ee a) (mon o cef a la) also may occur. Solitary heads, involucre tips brownish-green; upper leaf surface green, smooth, hairless.

HABITAT: Alpine—heaths, dry slopes.

Figure 17—Pussytoes, *Antennaria umbrinella* Rydb.

Figure 18

Arnica amplexicaulis Nutt.
(ar nee ka) (am pleks ee kaul is)
Clasping arnica. COMPOSITAE.

Scaly branched rhizome; erect, simple stem, 20 to 80 cm (8 to 32 in) tall, sometimes branching only in the flowering part of the stem, glandular-hairy upward; basal leaves elliptic-lanceolate, 5 to 11 cm (2 to 4-5/6 in) long, often withered by flowering time; stem leaves opposite, four to eight pairs, nonstalked, lanceolate to elliptic, irregular toothed margins, three to five main veins; largest leaves near or slightly below middle of stem; one to five erect heads, usually one, flower stalk tip hairy with long yellowish hairs; involucre 9 to 15 mm (3/8 to 9/16 in) high, narrowly lanceolate, hairy, tip ciliated, without conspicuous tuft of hair at tip; 8 to 14 yellow ray flowers, 1.0 to 2.5 cm (3/8 to 1 in) long, teeth conspicuous; yellow disk flowers, 7 to 9 mm (5/16 to 3/8 in) long, tube densely hairy; pappus brownish, with side hairs; achenes sparsely hairy.

HABITAT: Subalpine and alpine—open woods, moist rocky areas, cliffs, moist meadows.

Figure 18—Clasping arnica, *Arnica amplexicaulis* Nutt.

Figure 19

Arnica latifolia Bong.
(ar nee kah) (la tee fo lee ah)
Broadleaf arnica. COMPOSITAE.

Scaly branched rhizome; hairy stem 10 to 60 cm (4 to 24 in) tall; mostly solitary, erect or ascending, simple or branched above; basal leaves smaller than stem leaves, leaf stalks shorter than the blade, usually withered by flowering time; stem leaves lanceolate to cordate-ovate, 2 to 10 cm (3/4 to 4 in) long, 0.5 to 7 cm (3/16 to 2-3/4 in) wide, two to four pairs, nonstalked, margin sharp-toothed to rounded; one to five flower heads, tip of flower stalk covered with white woolly hair; involucral bracts lanceolate, 9 to 17 mm (3/8 to 5/8 in) long, hairy throughout, lacking a tuft of hair at the tip; 8 to 12 yellow ray flowers, shallowly toothed, 1.2 to 2.2 cm (1/2 to 7/8 in) long; yellow disk flowers; white barbellate pappus; achenes hairless in lower part and hairy in upper part or hairless throughout.

HABITAT: Subalpine and alpine—open woods, meadows, heaths, rocky areas.

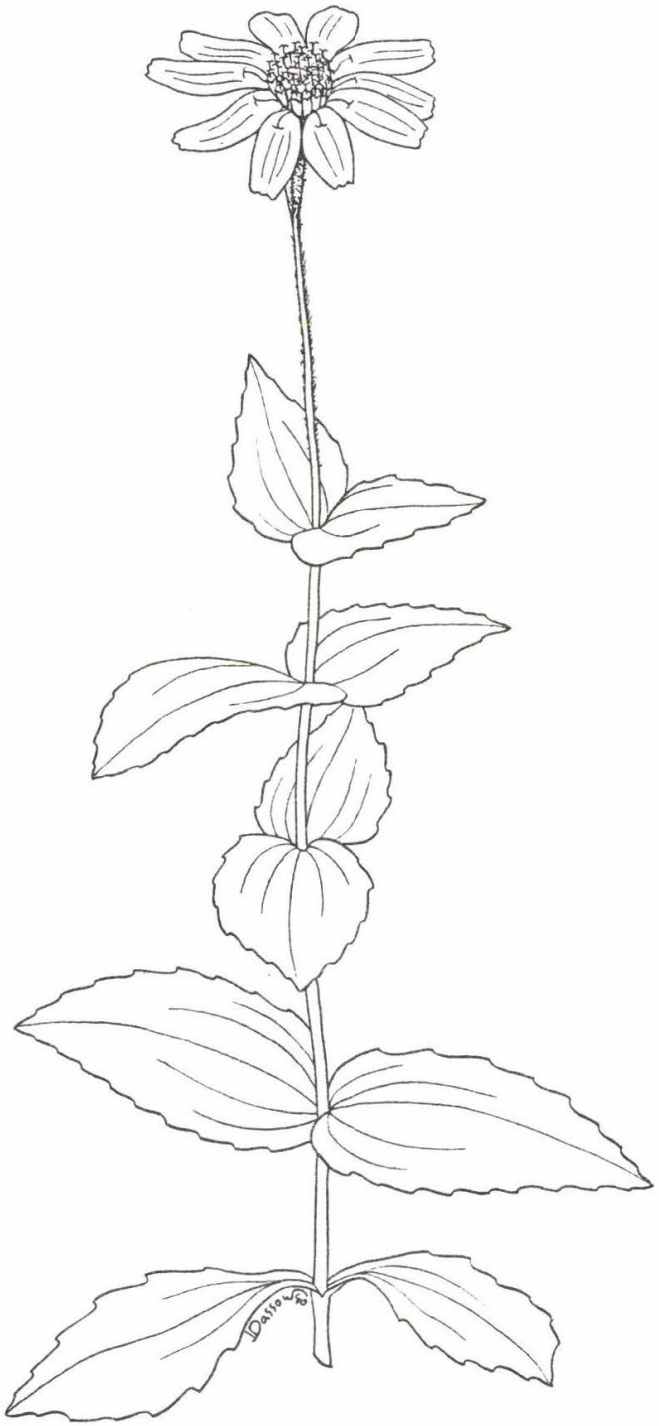

Figure 19—Broadleaf arnica, *Arnica latifolia* Bong.

Figure 20

Arnica lessingii Greene
(ar nee kah) (les sin gee i)
Lesser arnica. COMPOSITAE.

Scaly branching rhizome; single stem, 10 to 30 cm (4 to 12 in) tall, moderately hairy with purplish multicellular hairs; most leaves basal, lanceolate to elliptic, 3 to 10 cm (1-3/16 to 4 in) long, non-stalked or short stalked with narrow wings, rounded-toothed margins, hairy above; three to six pairs of stem leaves (sometimes all are near the base), entire to sharp toothed, 1.5 to 14.5 cm (9/16 to 5-11/16 in) long, 0.5 to 2.5 cm (3/16 to 1 in) wide; nodding, solitary head at end of stem, tip of stem moderately hairy with brownish hair; involucral bracts lanceolate, 12 to 17 mm (7/16 to 5/8 in) long with a broad hardened tip, hairy near base, no tuft of hair at tip; 8 to 14 yellow, toothed rays, 14 to 20 mm (1/2 to 3/4 in) long, yellow disk flowers, 6 to 8 mm (1/4 to 5/16 in) long, tube hairy, anthers purple; tawny, barbellate pappus about as long as petals, achenes 10-veined, smooth to hairy with flat, stiff, short hairs.

HABITAT: Subalpine and alpine—open woods, meadows, heaths, rocky areas.

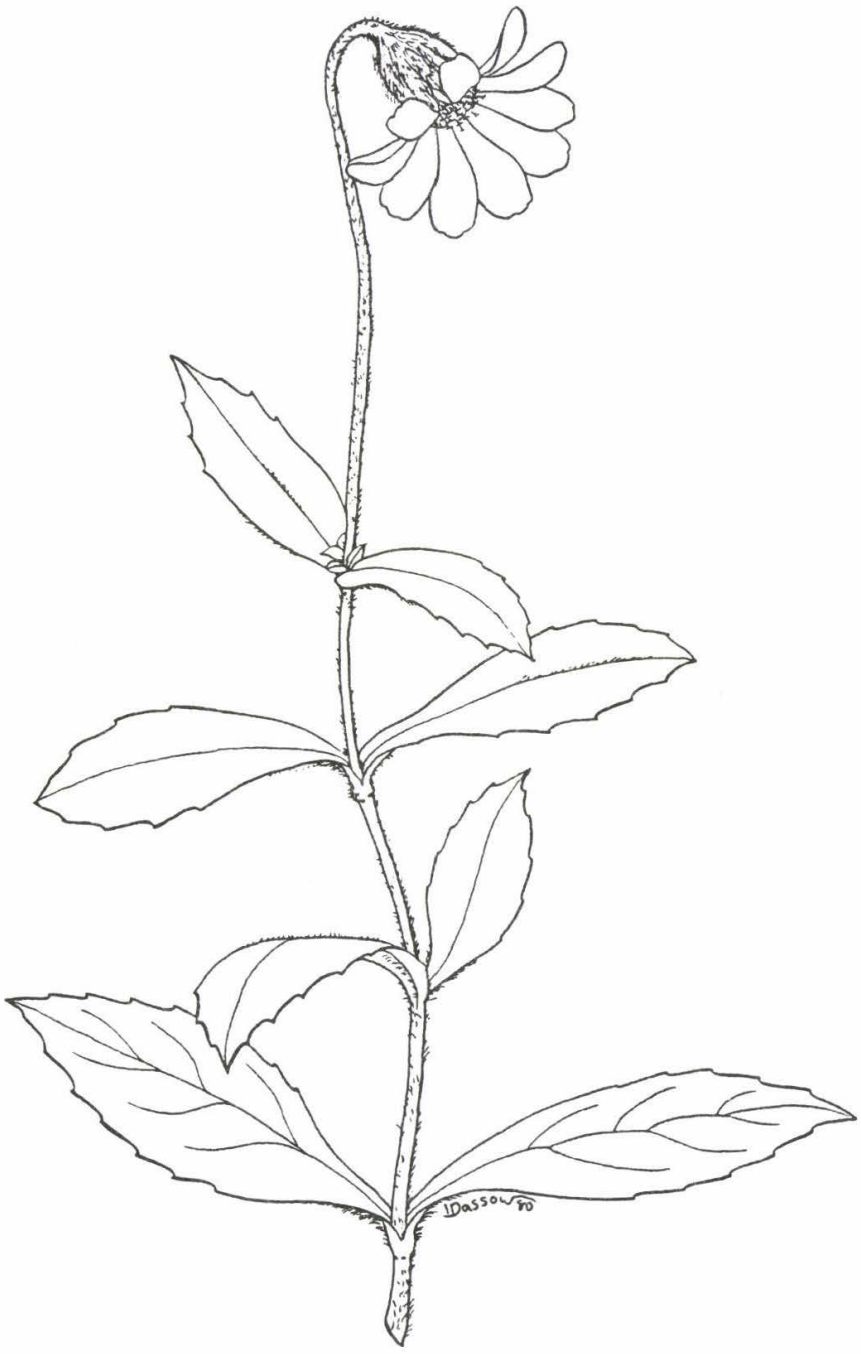

Figure 20—Lesser arnica, *Arnica lessingii* Greene.

Figure 21

Artemisia norvegica Fries
(ar teh mee see ah) (nor ve gee cah)
Arctic wormwood. COMPOSITAE.

Stout taproot; herbaceous upper stem growing from simple or branched woody lower stem, branches short, clothed with persistent leaf bases, short runners, and sterile rosettes; stem 10 to 70 cm (2 to 28 in) tall, often reddish, varying from hairless to hairy; basal bipinnately dissected into five to seven pairs of segments (pinnae), linear to linear-lanceolate with acute, ultimate lobes; basal leaves 3.5 to 10 cm (1-3/8 to 4 in) long, green on both surfaces or sparsely to moderately white woolly haired; stem leaves like basal leaves, upper ones becoming reduced; heads (fig. 105) nodding, lower heads long stalked, upper heads non-stalked or nearly so; smooth to hairy involucre, ovate-lanceolate to elliptic, membranous margins dark brown, thin, dry; yellow disk flowers only, hairy; pappus (fig. 105) lacking; achenes smooth, hairless.

HABITAT: Subalpine and alpine—meadows, heaths, rocky slopes, gravelly soils.

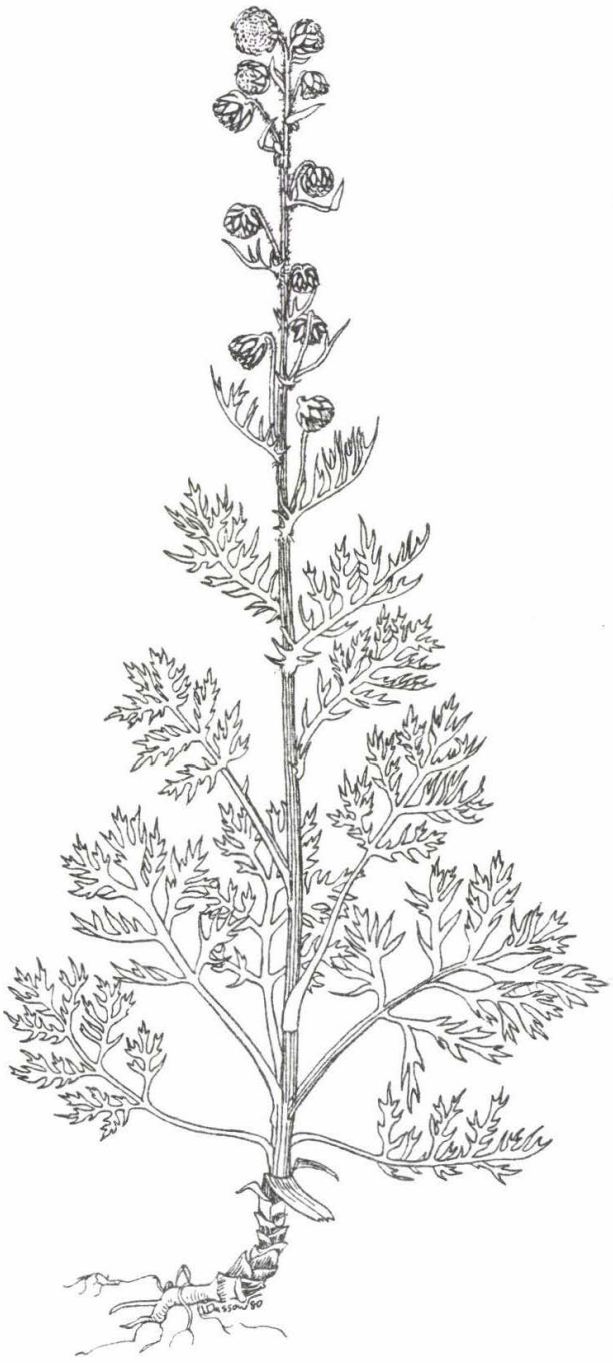

Figure 21—Arctic wormwood, *Artemisia norvegica* Fries.

Figure 22

Erigeron humilis Grah.
(eh ree ger on) (hyoo mee lis)
Alaska fleabane. COMPOSITAE.

Slender taproot; plants with simple or branched, persistent underground stems; single, erect, woolly, purple aerial stems, 5 to 20 cm (2 to 8 in) tall, with long dark hairs; most leaves basal, oblanceolate to spatulate, 1 to 8 cm (3/8 to 3-1/8 in) long, tapering to a slender or broad leaf stalk, hairy on both surfaces, margins entire, ciliate; stem leaves alternate, linear to lanceolate, reduced in size and becoming nonstalked on upper part of stem; flower heads single, erect, with both ray and disk flowers; flower bracts 1 to 2 cm (3/8 to 3/4 in) long, purple-black, woolly with long multicellular hairs; ray flowers white to purplish, 50 to 150 marginal flowers, 3.5 to 6 mm (1/8 to 3/16 in) long; disk flowers numerous, centrally located, subequal to or exceeding the white to tan pappus with minute barbellate bristles; achenes two veined, hairy.

HABITAT: Alpine—meadows, gravelly soil, snowbeds, heaths.

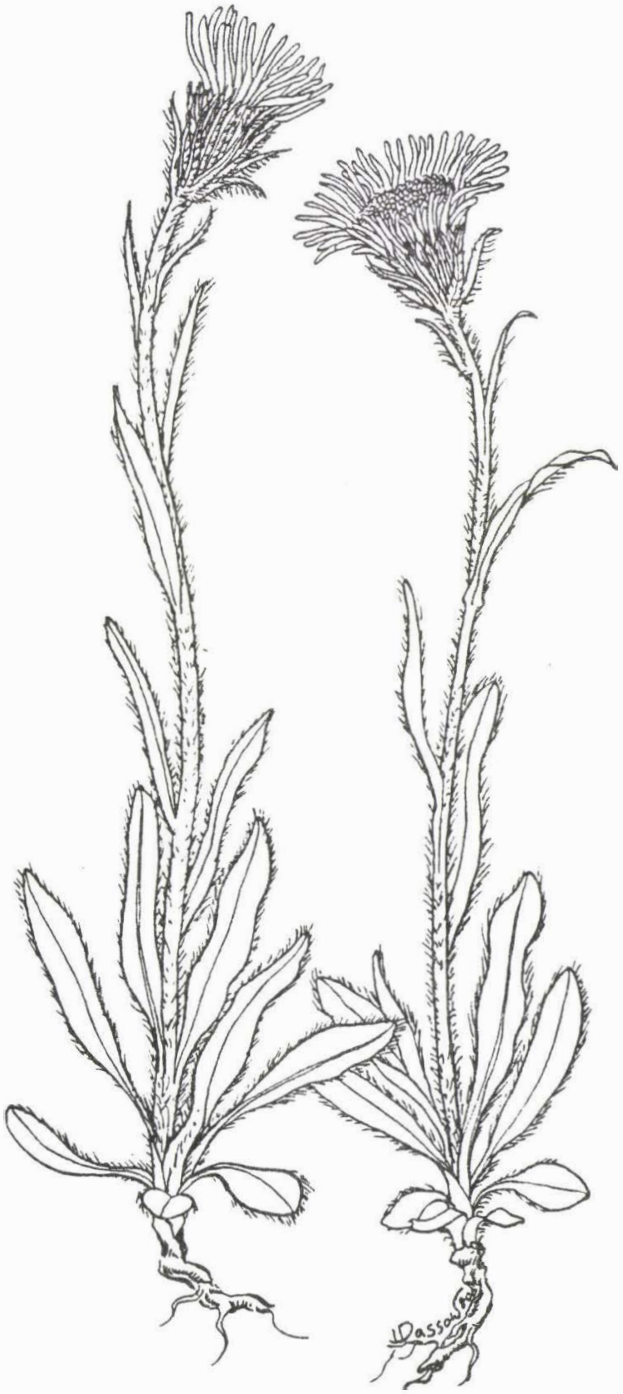

Figure 22—Alaska fleabane, *Erigeron humilis* Grah.

Figure 23

Erigeron peregrinus (Pursh) Greene
(eh ree ger on) (peh reh gree nus)
Coastal fleabane. COMPOSITAE.

Single leafy stem, 6 to 60 cm (2-3/8 to 24 in) or more tall, more or less hairy; basal leaves 1.5 to 20 cm (5/8 to 7-7/8 in) long, 0.4 to 3.5 cm (3/16 to 1-3/8 in) wide, oblanceolate to spatulate; stem leaves sessile, smaller than basal leaves, lanceolate to oblong; solitary heads; hairy involucre 6 to 12 mm (1/4 to 1/2 in) long, 12 to 30 mm (1/2 to 1-3/16 in) wide; 30-80 straplike flowers, pink, purple or white, 8 to 16 mm (5/16 to 5/8 in) long, 1.5 to 3 mm (1/16 to 1/8 in) wide; disk corolla exceeding the whitish to tan pappus.

HABITAT: Distributed from sea level to alpine. Subalpine and alpine—open woods, wet meadows, small stream channels, rocky slopes, cliffs.

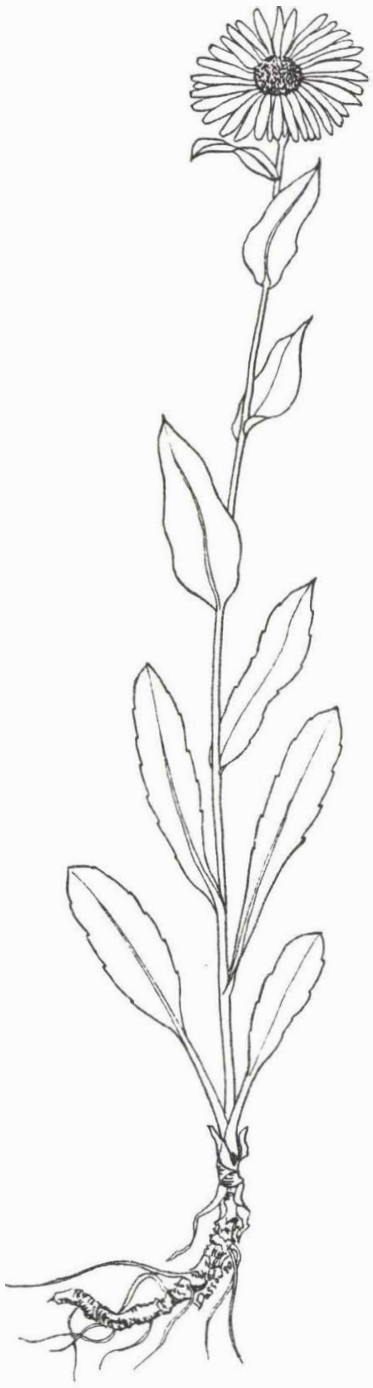

Figure 23—Coastal fleabane, *Erigeron peregrinus* (Pursh) Greene.

Figure 24

Hieracium triste Willd.
(hee ra see um) (trees teh)
Nodding hawkweed. COMPOSITAE

Fibrous roots; stems 3 to 30 cm (1-3/16 to 12 in), from rhizome-like persistent lower stem, dense, grayish, long, untangled hairs above, sparsely to moderately short to long hairy below; basal leaves 1 to 16 cm (3/8 to 6-5/16 in) long, oblanceolate to obovate, mostly entire, ciliate, long stalked, upper leaves much reduced; one to five heads, on stalks with long, grayish or blackish hair; involucre 7 to 10 mm (1/4 to 3/8 in) long, 5 to 14 mm (3/16 to 9/16 in) wide, usually somewhat obscured by long hairs; yellow ray flowers; pappus blackish-brown.

HABITAT: Alpine—meadows, stream banks, rocky slopes.

USES: The ancient Greeks believed that hawks ate the sap to improve their eyesight, hence the name, hawkweed.

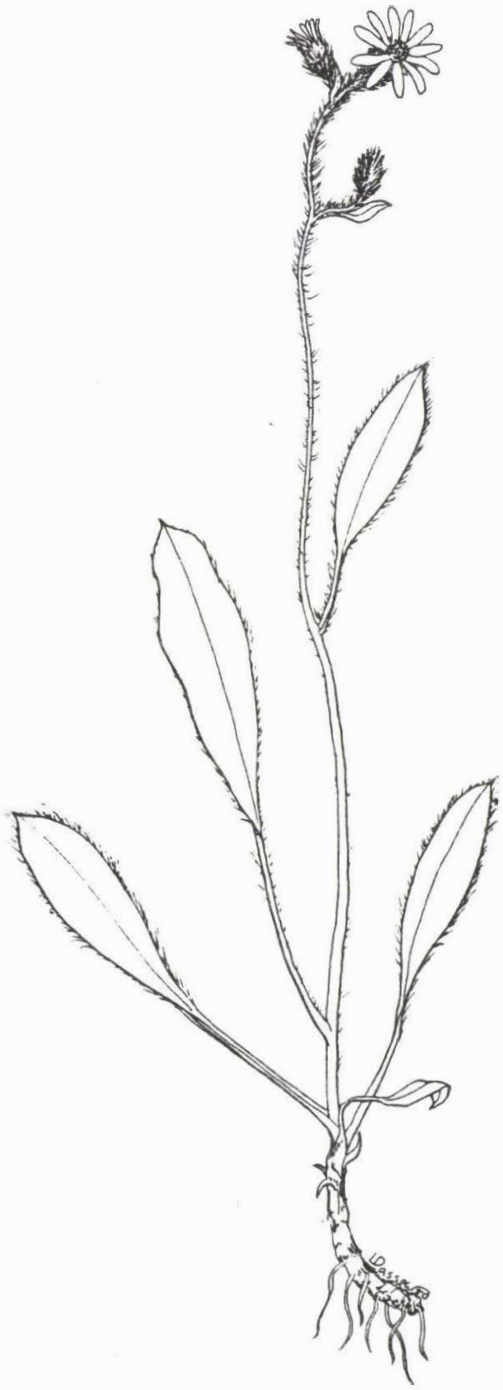

Figure 24—Nodding hawkweed, *Hieracium triste* Willd.

Figure 25

Petasites frigidus (L.) Fries
(peh ta see tes) (free gee dus)
Arctic sweet coltsfoot. COMPOSITAE.

Stout, creeping, branching rhizomes; flowering stems 6 to 45 cm (2-3/8 to 18 in) tall, bearing few to many alternate, nonstalked, prominently veined, ovate bracts, more or less white hairy; reddish stem scales; stems grow before the leaves develop; thick, leathery leaves arising directly from rhizome, blade 2 to 18 cm (3/4 to 7-1/16 in) long from sinus to apex, 3 to 25 cm (1-3/16 to 10 in) wide; broadly ovate to kidney shaped, conspicuously lobed or toothed, usually less than 15 teeth per side, dark green, smooth above, densely hairy below; four to seven heads arising from end of stem; flower heads subtended by whorl of lanceolate to ovate bracts; involucre (fig. 105) bell-shaped, 6 to 9 mm (1/4 to 3/8 in) long, green to reddish-green; both disk and ray flowers (fig. 105) present; ray flowers with straplike petal, about 5 mm (3/16 in) long, white to pinkish, tip toothed; disk flowers white to pinkish, funnel-shaped with flaring lobes; pappus with numerous long, white or yellowish-white bristles.

HABITAT: Subalpine to alpine—moist sites in woods, heaths, snowbeds, moist rocks.

USES: Leaves and flowering shoots were eaten raw or cooked. Cooking improved the flavor of leaves collected late in the season. A sauerkraut was made by fermenting the leaves and stems. The root was roasted and eaten.

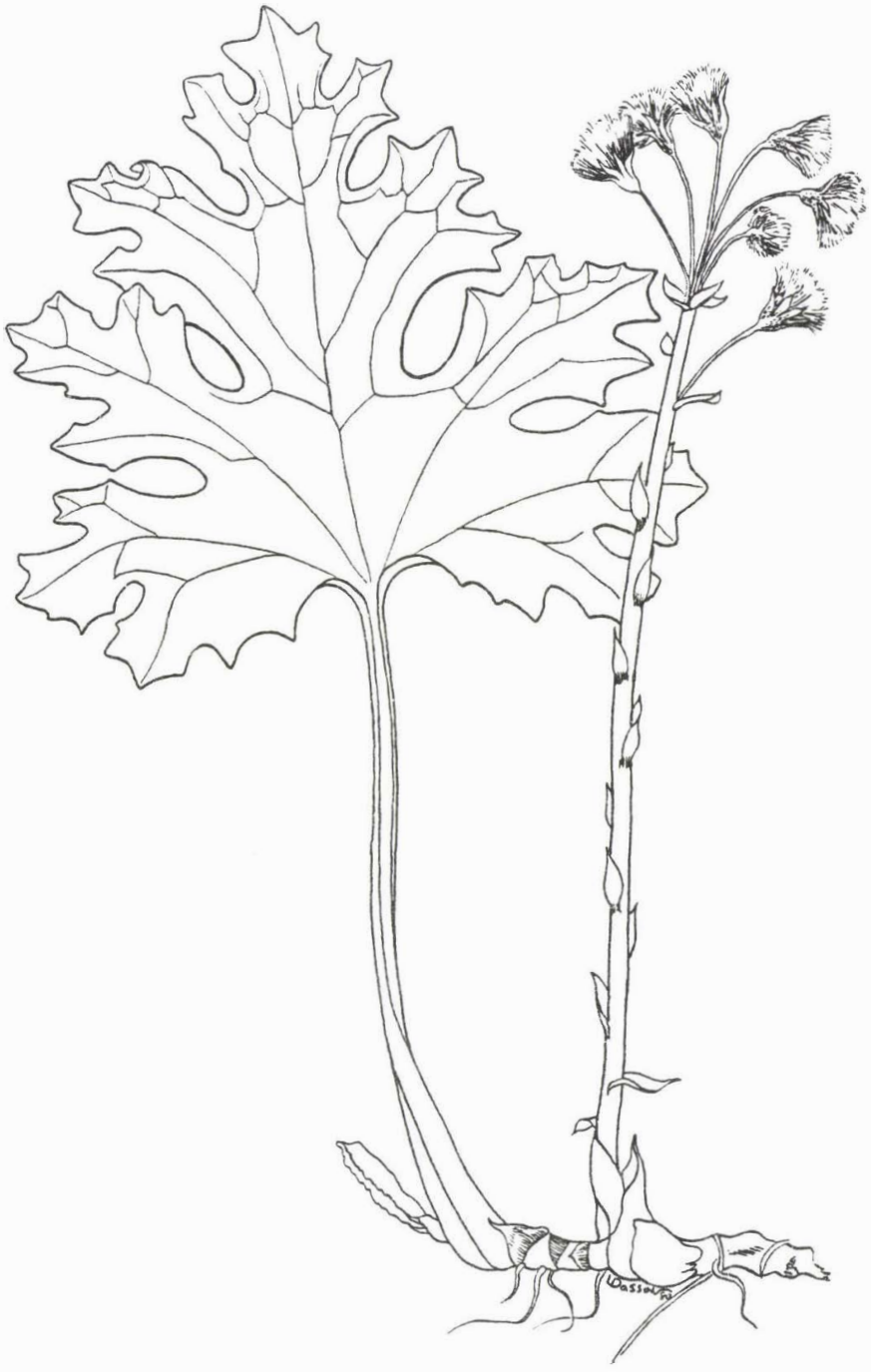

Figure 25—Arctic sweet coltsfoot, *Petasites frigidus* (L.) Fries.

Figure 26

Senecio triangularis Hook.
(seh neh see oh) (tri an gyoo lar is)
Arrowleaf groundsel. COMPOSITAE.

Stout rhizome; stems several, simple, 30 to 120 cm (1 to 4 ft) tall, hairless to short hairy, more evident above; basal leaves smaller than stem leaves, usually withered by flowering time; stem leaves 4 to 20 cm (1-9/16 to 8 in) long, lower leaves stalked, blades triangular-hastate to triangular-cordate, upper leaves nonstalked, smaller, sharply toothed; three to many small heads in a flat-topped flower cluster; involucre of one or more lance-oblong, green, bracts touching but not overlapping, forming a cup, basal margins thin, dry membranous, tips black, tufted-hairy; yellow ray flowers 8 to 14 mm (5/16 to 9/16 in) long, 2 to 6 mm (1/16 to 1/4 in) wide; achenes smooth, hairless.

HABITAT: Distributed from sea level to alpine. Subalpine and alpine—meadows, open grassy slopes, cliffs, woods.

Senecio lugens Richards. (seh neh see oh) (loo gens) (lugen groundsel) also may occur. Involucral bracts black tipped, in two or more rows, without translucent, thin, dry margins; basal leaves present, with broadly winged leaf stalks, sharply toothed; upper stem leaves much reduced.

HABITAT: Subalpine and alpine—wet areas, open grassy slopes, edge of cliffs.

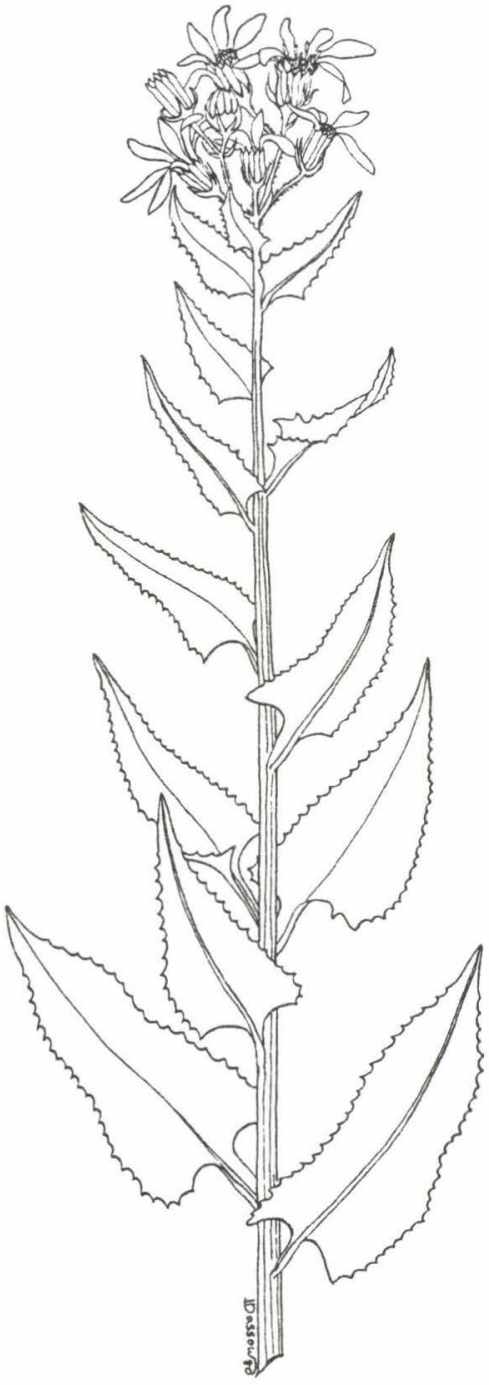

Figure 26—Arrowleaf groundsel, *Senecio triangularis* Hook.

Figure 27

Solidago multiradiata Ait.
(so lee dah goh) (mul tee rah dee ah tah)
Northern goldenrod. COMPOSITAE.

Short woody rhizome; stem 15 to 70 cm (6 to 28 in) tall, hairy at least above; basal leaves oblanceolate-elliptic, tapering to a winged leafstalk, ciliate along wings of leaf stalk, hairless, smooth on both surfaces, margins entire to toothed, stem leaves gradually reduced upward, becoming unstalked, sometimes clasping; heads several to numerous; 12 to 18 lance-oblong to lance-linear yellow ray flowers, 4 to 6.5 mm (1/8 to 1/4 in) long; achenes hairy.

HABITAT: Widely distributed from sea level to alpine. Subalpine and alpine—meadows, rocky soils, cliffs.

USES: The young leaves were used as a potherb. The dried flowers and leaves made good tea. An antiseptic lotion was made by boiling stems and leaves. Mature leaves were dried and ground for an antiseptic powder.

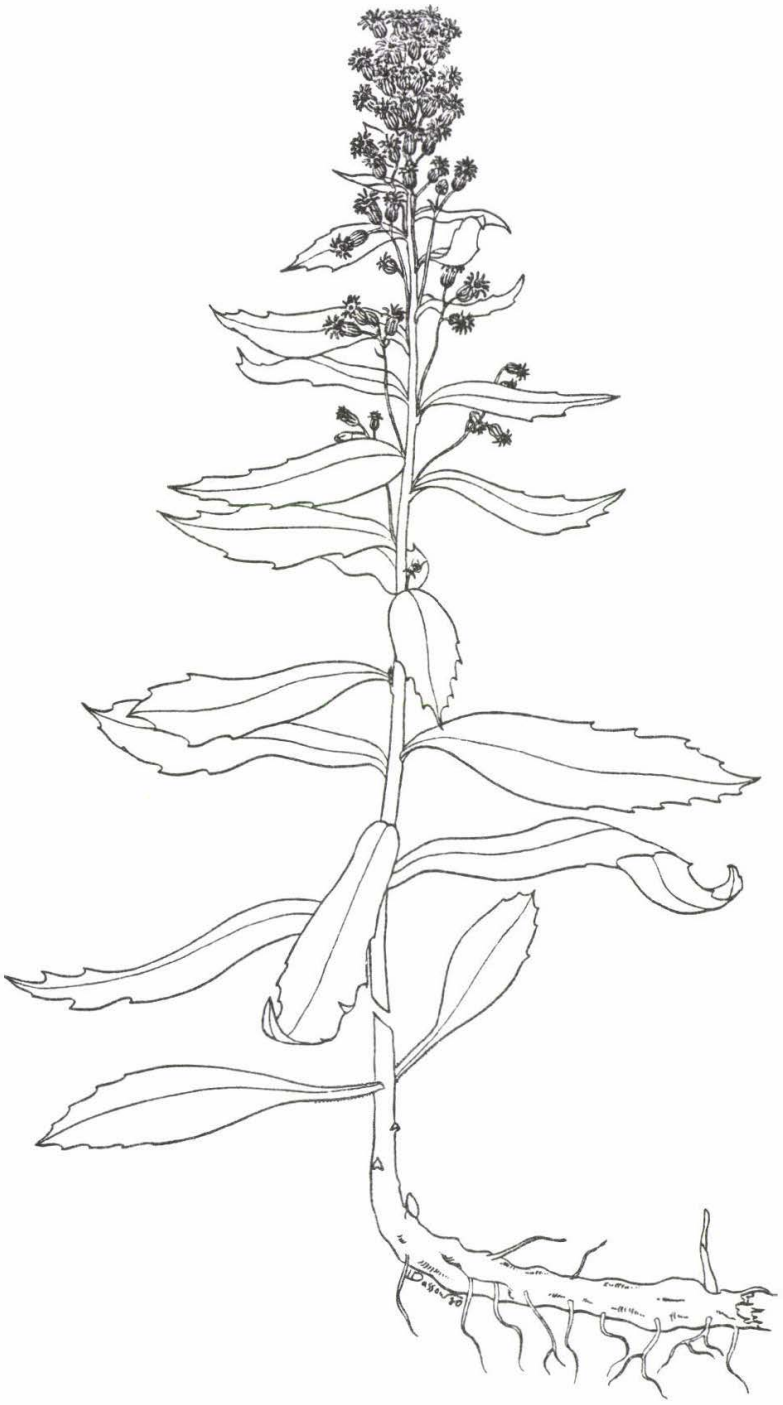

Figure 27—Northern goldenrod, *Solidago multiradiata* Ait.

Figure 28

Taraxacum eriophorum Rydb.
(ta raks ah kum) (eh ree o fo rum)
Dandelion. COMPOSITAE.

Stout, thick, slender taproot; plant from simple or branched, red-tinged, persistent stem, 4 to 15 cm (1 9/16 to 6 in) tall; leaves basal, 2.5 to 13 cm (1 to 5-1/8 in) long, 0.4 to 2 cm (1/8 to 3/4 in) wide, with flat, purplish-tinged leaf stalk, leaf blade divided into leaflets on opposite sides of a midrib, end lobe broader than the lateral lobes; flower stalk smooth, hairless; outer bracts ovate to lanceolate, ascending to spreading, inner bracts lanceolate to oblong, erect, enveloping flowers, tips not swollen or having appendages; yellow ray flowers with outer surface grayish below; achenes smooth, with few spines at top only, red to brownish-red, beak shorter than the body or one to two times longer; pappus white with long silky hairs.

HABITAT: Subalpine and alpine—meadows, tundra, heaths.

USES: Has 25 times more vitamin A than tomato juice. Root is sweet when cleaned of its brown skin. Root was roasted or fried, dried, and ground to make coffee. Root was used as a blood medicine, bitter tonic, and mild laxative. Leaves were used as greens. Natives boiled crown of leaves and buds in hot water for 10 to 20 minutes and served with vinegar and butter. Dried leaves were used for tea. Flowers were used in making dandelion wine. According to legend, dandelions once saved the island population of Minorca in the Mediterranean Sea from starvation. A grasshopper invasion wiped out all vegetation, and the people survived by digging up and eating dandelion roots.

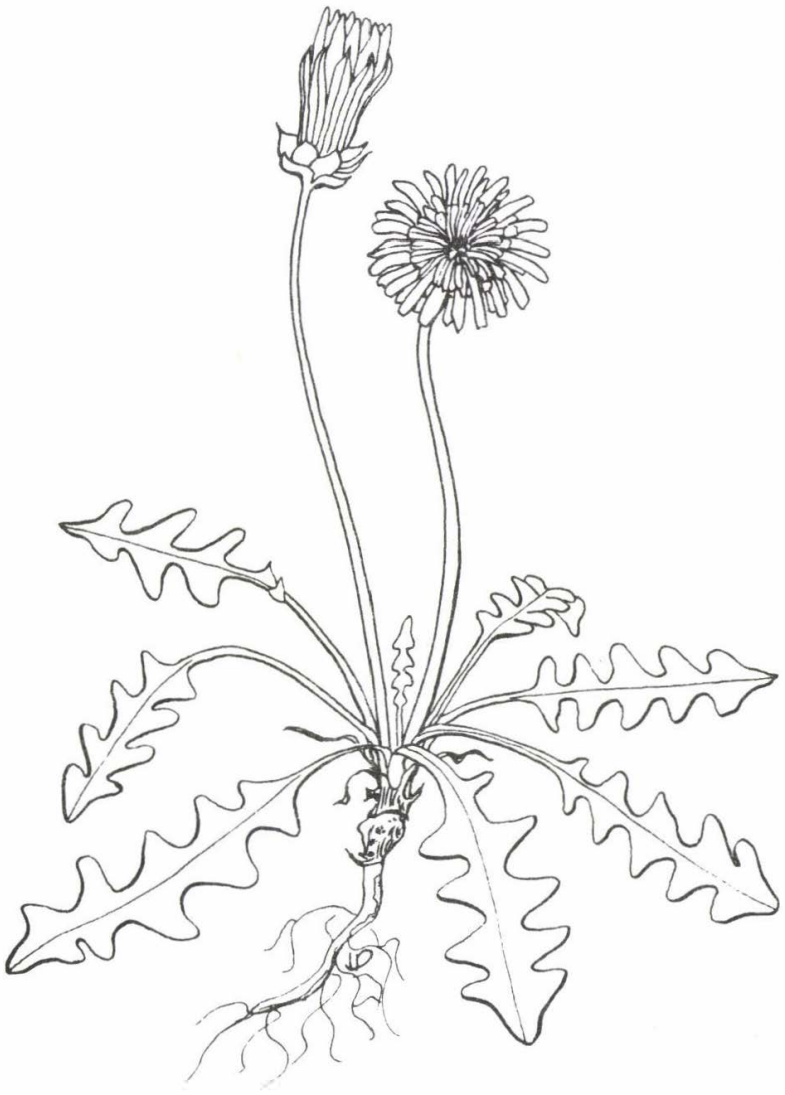

Figure 28—Dandelion, *Taraxacum eriophorum* Rydb.

Figure 29

Cornus suecica L.
(kor nus) (soo eh cee kah)
Swedish cornel. CORNACEAE.

Erect, more or less square stem from creeping rhizome, 5 to 25 cm (2 to 10 in) tall; stem with three or more pairs of opposite small leaves and a whorl of four to six leaves below the flower; lateral veins arise from the base of leaf or nearly so; white petal-like bracts with rose-purple tips surrounding a group of small flowers; flowers purplish-black, white hairs at base only; fruit red.

HABITAT: Distributed from sea level to alpine. Subalpine and alpine—woods, bogs, heaths.

Cornus canadensis L. (kor nus) (can ah den sis) (bunchberry) can also be found.

Erect, more or less square stem from creeping rhizome, 5 to 25 cm (2 to 10 in) tall; stem with one or two pairs of opposite small leaves and a whorl of four to six leaves below the flower; lateral veins arise from the midvein in the lower third of the leaf; white petallike bracts with rose-purple tips surrounding a group of small flowers; flowers yellowish-green, entirely covered with white hairs; fruit red.

A cross between *C. canadensis* and *C. suecica* representing combinations of characters (size, form, arrangement of leaves, and the color and hairiness of the flowers) may also be found. This hybrid is often called *Cornus unalaschkensis* Ledeb. (western cordilleran bunchberry).

HABITAT: Widely distributed from sea level to alpine. Subalpine and alpine—bogs, open woods, heaths.

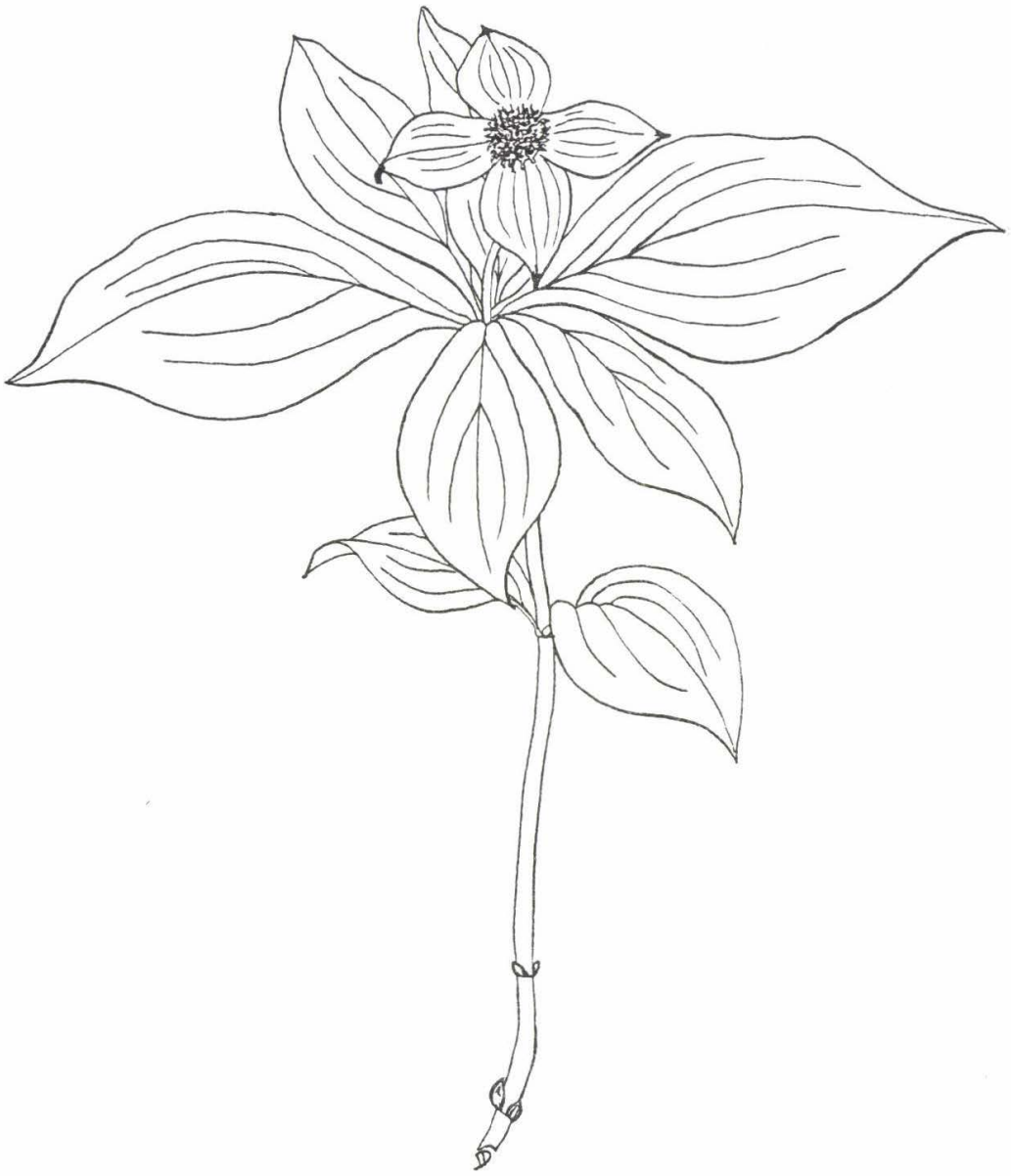

Figure 29—Swedish cornel, *Cornus suecica* L.

USES: In Scotland, it was called the "plant of gluttony" because of its supposed power of increasing the appetite. Fruits were eaten raw or cooked. Berries cooked with whey made a good pudding. A mild tea was made from the roots for baby colic. Leaves were smoked as a substitute for tobacco.

Figure 30

Sedum rosea (L.) Scop.
(seh dum) (ro zee ah)
Roseroot. CRASSULACEAE.

Thick, fleshy, scaly, rhizome, fragrant when cut; lower part of stem woody, upper part nonwoody (herbaceous); stem branched, lower part stout, covered with persistent scalelike leaves; upper stems erect or ascending, 3 to 45 cm (1-3/16 to 18 in) tall; leaves alternate, ovate to oblanceolate, irregularly toothed to entire, red tipped, smooth, hairless, waxy on both surfaces; flowers in a flat cluster at end of stem; sepals greenish, united at base; petals red-purple; flowers with eight purple stamens or with pistils.

HABITAT: Subalpine and alpine—woods, heath, rocky cliffs, rocky slopes, fell-fields.

USES: Young leaves and shoots were used raw in salad or boiled 15 minutes as a potherb. Mature leaves, stems, and roots were cooked late in summer but were somewhat bitter and fibrous.

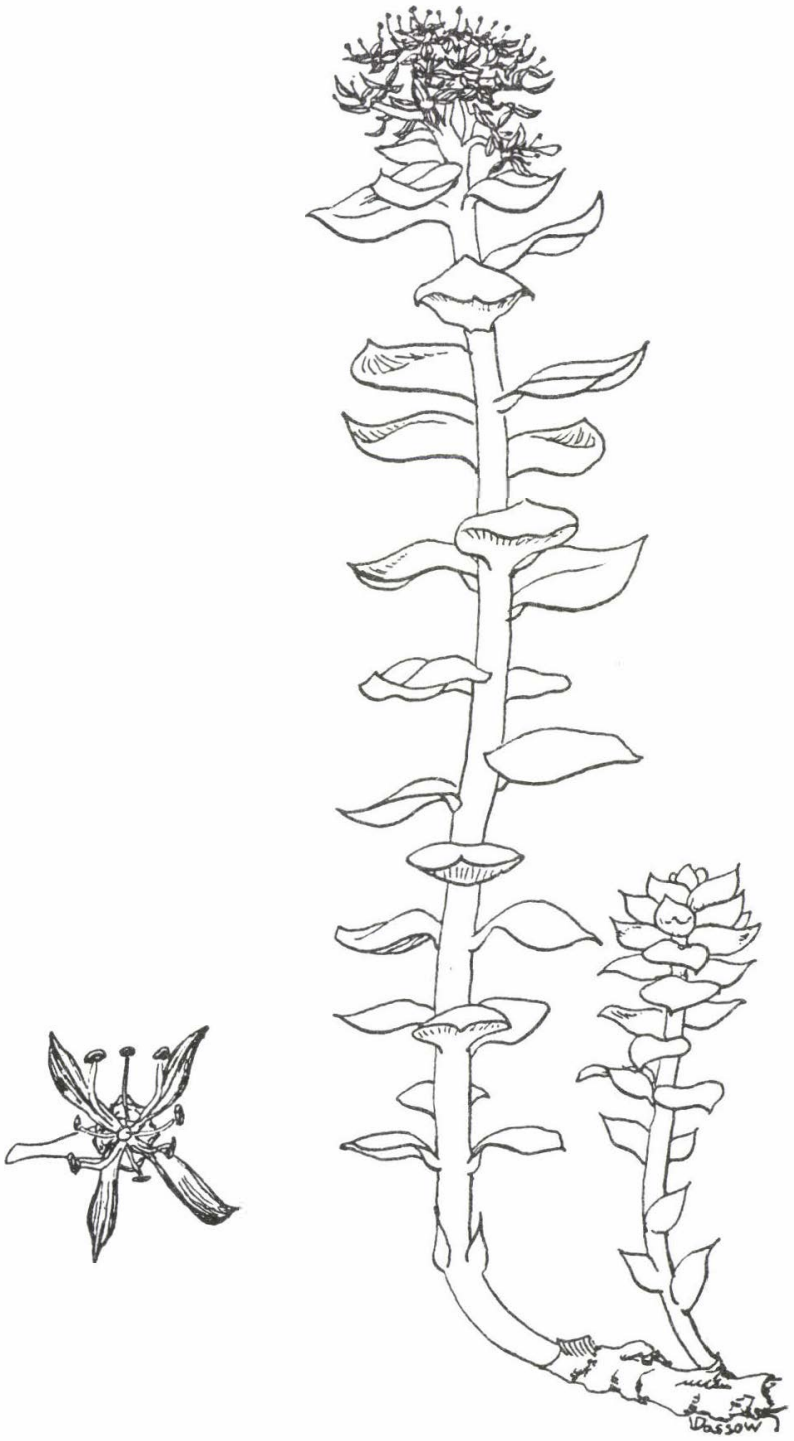

Figure 30—Roseroot, *Sedum rosea* (L.) Scop.

Figure 31

Cardamine bellidifolia L.
(kar dah mee neh) (bel lee deh fo lee ah)
Alpine bittercress. CRUCIFERAE.

Long, slender, taproot; densely tufted with several to many slender, ascending persistent stems, bearing numerous hairlike remains of old leaves, usually less than 7 cm (2-3/4 in) tall, smooth and hairless, leaves mostly basal, simple, margins entire, ovate, with long leaf stalks 1 to 2 cm (3/8 to 3/4 in) long, blade 0.2 to 1.8 cm (1/16 to 11/16 in) long, 0.1 to 1 cm (1/16 to 3/8 in) wide; one to three stem leaves, much reduced in size; small, white, few-flowered flat-topped cluster at end of stem; pinkish sepals 1.8 to 3.5 mm (1/16 to 1/8 in) long; siliques erect, linear, 10 to 35 mm (3/8 to 1-3/8 in) long, hairless; styles 1 to 3 mm (1/16 to 1/8 in) long.

HABITAT: Alpine—moist gravel areas, gravelly stream channels, wet heaths.

USES: Entire plant was used in salads. Roots were grated for condiment.

Figure 31—Alpine bittercress, *Cardamine bellidifolia* L.

Figure 32

Cardamine oligosperma Nutt.
(kar dah mee neh) (o lee go sper mah)
Umbelflowered bittercress. CRUCIFERAE.

Slender taproots; stems erect to ascending, usually smooth, hairless, sometimes with short spreading hairs, 4 to 45 cm (1-9/16 to 18 in) tall; basal leaves with one to three pairs (sometimes with oval to rounded leaflets) the lateral leaflets 0.3 to 2 cm (1/8 to 3/4 in) long, 0.2 to 1.5 cm (1/16 to 5/8 in) wide, entire or lobed, kidney- to orbicular-shaped terminal leaflet, wide, usually hairless; stem leaves reduced in size upward, upper stem leaves with lanceolate or oblong leaflets; flowers crowded at top of stem in flat-topped cluster, flower stalks strongly ascending; greenish or purplish sepals, hairless; white petals longer then sepals; siliques (fruits) 15 to 30 mm (9/16 to 1-3/4 in) long, 1.2 to 2 mm (1/16 in) broad, erect, hairless; style 0.4 to 1 mm (1/16 in) long.

HABITAT: Distributed from sea level to alpine. Subalpine and alpine—moist sites in woods, heaths, wet meadows, wet rocky areas.

USES: The entire plant was used in salads.

Figure 32—Umbelflowered bittercress, *Cardamine oligosperma* Nutt.

Figure 33

Empetrum nigrum L.
(em peh trum) (nee grum)
Black crowberry. EMPETRACEAE.

Low creeping, matted, evergreen shrub, 15 cm (6 in) tall; much branched, horizontal stems; leaves four in a whorl or alternate, 3 to 7 mm (1/8 to 1/4 in) long, linear, edges rolled under, spreading; flowers solitary, inconspicuous; fruit blue-black, watery juice, six to nine hard reddish-brown seeds.

HABITAT: Distributed from sea level to alpine. Subalpine and alpine—bogs, acidic heaths.

USES: Raw berries are bland, but sugar and cooking enhances the flavor. Beer and a sparkling white wine were made from the juice.

Figure 33—Black crowberry, *Empetrum nigrum* L.

Figure 34

Cassiope mertensiana (Bong.) D. Don
(kas see oh peh) (mer ten see ah nah)
Mertens mountain-heather. ERICACEAE.

Mat-forming, branched, evergreen shrub with upturned branches, 5 to 30 cm (2 to 12 in) tall; stem covered with leaves except at base where dead leaves persist; stem four-angled or square in cross section; leaves opposite in four rows, bases overlapping, scalelike, ovate to lanceolate, 1.5 to 3 mm (1/16 to 1/8 in) long, rounded on back (keeled), grooved at base, margins entire; white to pinkish solitary flowers arising from axil of leaves below stem tip; bell-shaped white petals, 6 mm (1/4 in) long with five flaring lobes about one-half as long as tube; five rounded, reddish, scarious margined sepals, united at the base; fruit a capsule.

HABITAT: Alpine—rocky slopes, rocky ridges, heaths.

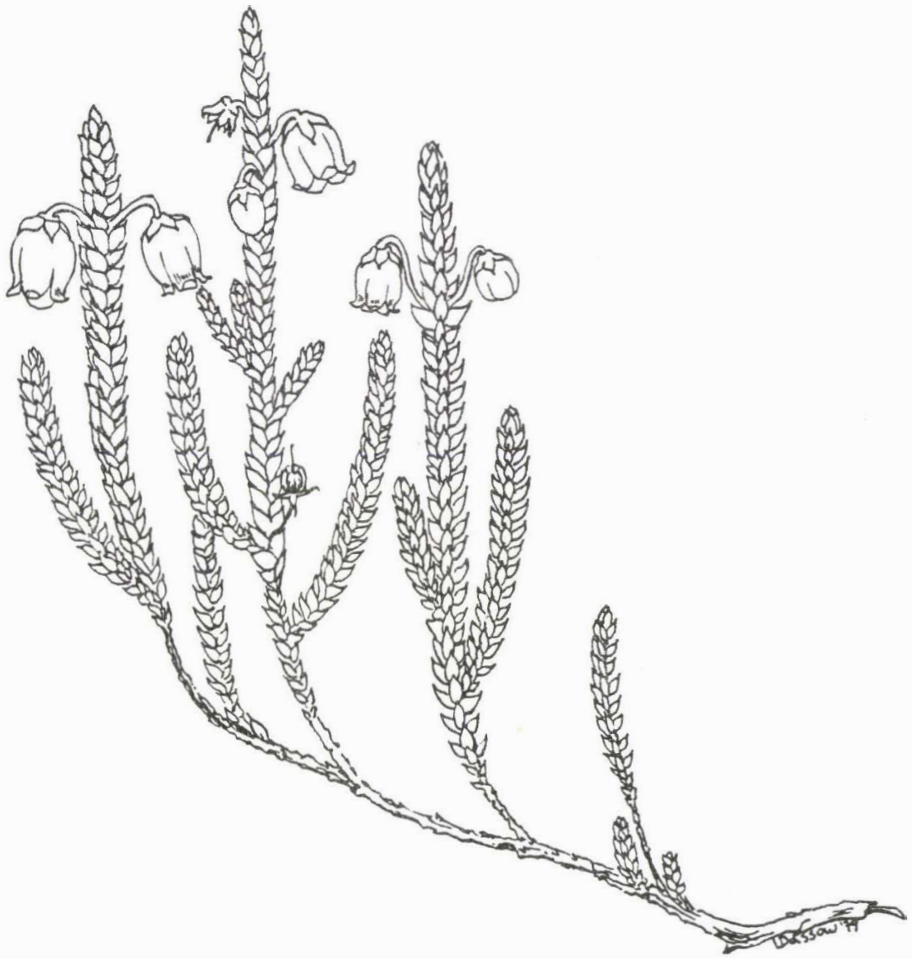

Figure 34—Mertens mountain-heather, *Cassiope mertensiana* (Bong.) D. Don.

Figure 35

Cassiope stelleriana (Pall.) DC.
(kas see oh peh) (stel leh ree ah nah)
Alaska moss heather. ERICACEAE.

Low spreading, mat-forming, evergreen shrub, branches ascending to erect, 5 to 10 cm (2 to 4 in) tall; slender reddish stems; alternate leaves, more or less spreading, linear to lanceolate, 3 to 5 mm (1/8 to 3/16 in) long, mature leaves flat above, rounded beneath, margins not distinctly scarious, entire to somewhat irregularly notched margins; terminal, single, erect to nodding, white to pink, bell-shaped flowers; petals 5 to 7 mm (3/16 to 1/4 in) long, the lobes longer than the tube; reddish sepals, united in lower half.

HABITAT: Subalpine and alpine—heaths, rocky slopes, rocky ridges.

Cassiope lycopodioides (Pall.) D. Don (kas see oh peh)
(lik oh poh de oi dez) (Alaska cassiope) also may occur. Stem thin, 1.5 to 2 mm (1/16 in) in diameter including leaves; main leaves less than 3 mm (1/8 in) long, with scarious margins, often with long, brownish hairs on the tips, upper surface hairy; single flower on long stalk arising below tip of stem; creeping, does not form mats.

HABITAT: Alpine—heath, rocky slopes, rocky ridges.

Cassiope tetragona (L.) D. Don (kas see oh peh) (te tra goh nah) (four-angled mountain-heather) also may occur. Stems covered by leaves, 5 mm (3/16 in) in diameter including leaves; main leaves deeply grooved on the back, short fine hairs along the edges; flowers single from axil of leaf.

HABITAT: Alpine—heath, rocky slopes, rocky ridges.

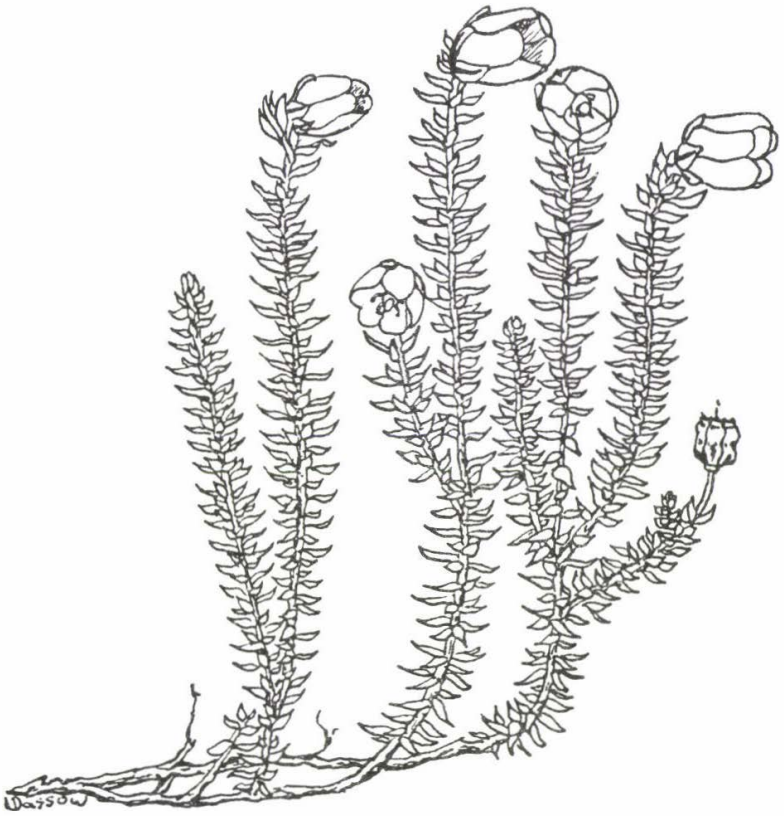

Figure 35—Alaska moss heather, *Cassiope stelleriana* (Pallas) DC.

Figure 36

Cladothamnus pyrolaeflorus Bong.
(kla do tham nus) (pi ro leh flor us)
Copperflower. ERICACEAE.

Erect shrub with ascending branches, 0.5 to 1.5 m (1-1/2 to 4-1/2 ft) tall; older twigs with shedding bark; short hairs, extending downward on stem below leaf bases; leaves alternate (fig. 88), sometimes appearing in whorls, ovate to oblanceolate, 20 to 40 mm (3/4 to 1-1/2 in) long, 5 to 12 mm (3/16 to 1/2 in) wide, non-stalked, entire, pale green and somewhat whitish on lower surface; flowers showy, one to several at end of twigs, about 25 mm (1 in) across; stamens 10, hooked near tip; five spreading, oval, copper-colored petals; fruit reddish-brown capsule.

HABITAT: Distributed from sea level to alpine. Subalpine and alpine—thickets, woods, meadows.

Figure 36—Copperflower, *Cladothamnus pyrolaeflorus* Bong.

Figure 37

Loiseleuria procumbens (L.) Desv.
(loy seh lur ee a) (pro kum bens)
Alpine azalea. ERICACEAE.

Low-growing, 25 to 50 mm (1 to 2 in) tall, loosely branched, matted, evergreen shrub; stems strongly reclining on ground, ascending, with dense leafy ends; leaves opposite (fig. 89), leathery, elliptical to oblong, 3 to 6 mm (1/8 to 1/4 in) long, margins strongly rolled under, upper surface dull green, smooth, hairless, lower surface covered with dense, matted hair, midrib (main vein) very prominent on lower surface; two to six showy flowers at the end of branches; pink-purple flower stalk, 4 to 5 mm (3/16 to 1/4 in) long; reddish, ovate to lanceolate sepals, united at base; rose-pink bell-shaped petals with dark colored lobes, light colored base.

HABITAT: Alpine—acidic soils, heath, windswept slopes, rocky ridges.

Figure 37—Alpine azalea, *Loiseleuria procumbens* (L.) Desv.

Figure 38

Phyllodoce glanduliflora (Hook.) Cov.
(fil loh doh seh) (glan du lee flo ra)
Yellow mountain-heather. ERICACEAE.

Mat-forming, branched, evergreen shrub, 5 to 30 cm (2 to 12 in) tall, erect or ascending; numerous alternate leaves, needlelike, linear, 6 to 12 mm (1/4 to 1/2 in) long, 1.5 mm (1/16 in) wide, thick, yellow-green to green, margins strongly rolled under, minute glandular teeth on edge, upper surface smooth, lower surface white, hairy, short-stalked leaves crowded in upper 5 to 10 cm (2 to 4 in) of stem; 5 to 15 yellow-green, nodding flowers arising from the tip of an erect stem; flower stalks 12 to 15 mm (1/2 to 5/8 in) long, hairy; urn-shaped petals 6 mm (1/4 in) long with five small flaring lobes; five bell-shaped, hairy sepals with thin light yellow margins.

HABITAT: Subalpine and alpine—heath, dry mountain slopes, rocky slopes, ridges.

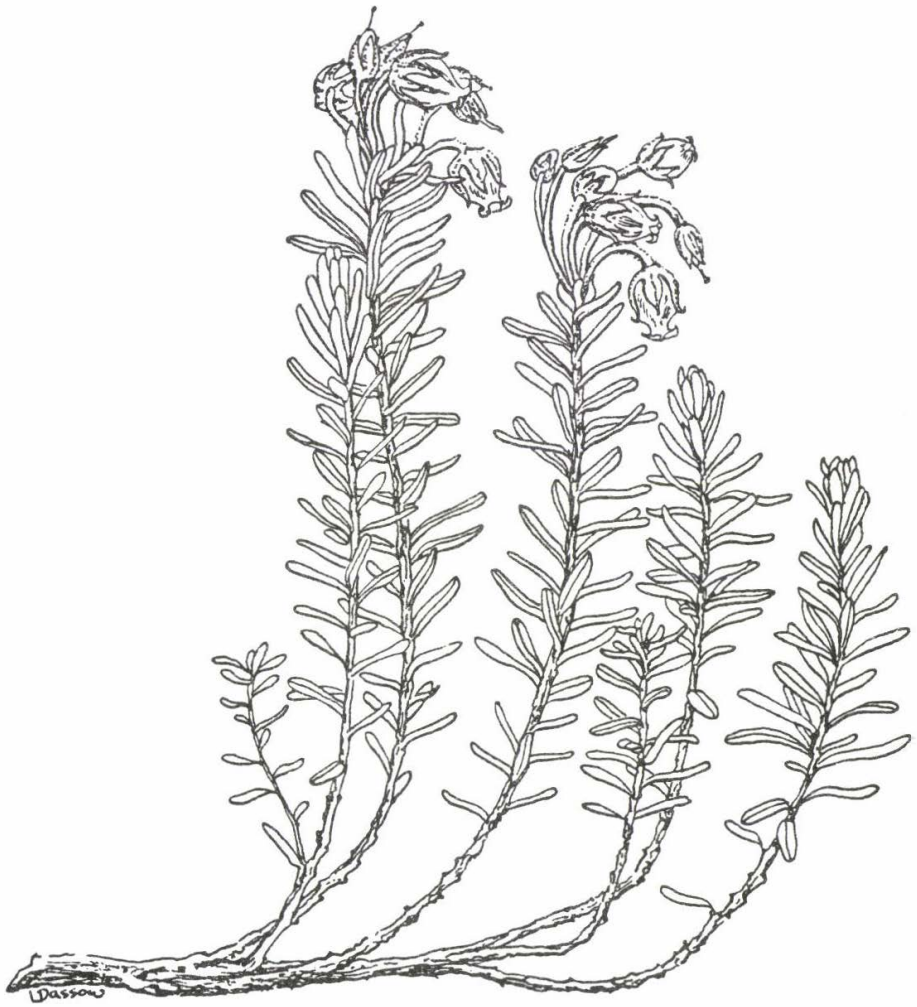

Figure 38—Yellow mountain-heather, *Phyllodoce glanduliflora* (Hook.) Coville.

Figure 39

Vaccinium caespitosum Michx.
(vak seh nee um) (ses peh toh sum)
Dwarf blueberry. ERICACEAE.

Low-spreading, matted shrub, 10 to 40 cm (4 to 16 in) tall; leaves 10 to 35 mm (3/8 to 1-3/8 in) long, 5 to 10 mm (3/16 to 3/8 in) wide, elliptic to obovate, uniformly and densely toothed margins, deciduous, hairless, smooth above, often glandular below; single flower at the base of leaves, pink to whitish-pink, urn-shaped; fruit a glaucous blue berry.

HABITAT: Distributed from sea level to alpine. Subalpine and alpine—wet meadows, margins of ponds, woods.

USES: Berries can be eaten raw or made into jams and jellies.

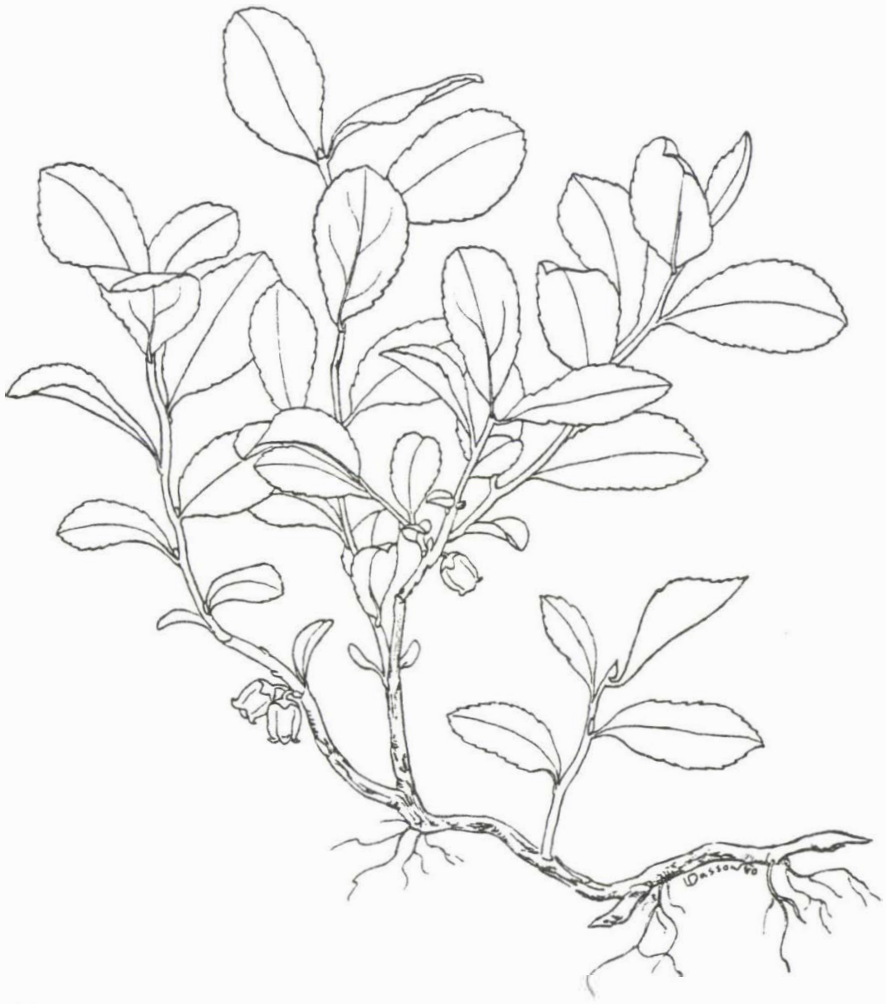

Figure 39—Dwarf blueberry, *Vaccinium caespitosum* Michx.

Figure 40

Vaccinium uliginosum L.
(vak seh nee um) (yoo leej ee noh sum)
Alpine blueberry. ERICACEAE.

Strongly branched, low shrub, 20 to 40 cm (8 to 16 in) tall; leaves 1 to 2.8 cm (3/8 to 1-1/16 in) long, 0.2 to 1.5 cm (1/16 to 9/16 in) wide, oval to elliptic, entire margins, dark green on upper surface, lower surface lighter with conspicuous veins; flowers one to four from scaly buds of previous year; petals white or pinkish, urn-shaped; blue-black berry.

HABITAT: Distributed from sea level to alpine. Subalpine and alpine—muskeg, bogs, woods, heath.

USES: Berries eaten raw or cooked. Fresh or dried leaves are used for tea. The Indians gathered the berries and dried them. They were stored and later used to thicken soup, to flavor other foods like meat, or to work into their famous pemmican products.

Figure 40—Alpine blueberry, *Vaccinium uliginosum* L.

Figure 41

Vaccinium vitis-idaea L.
(vak seh nee um) (vee tis-ee deh ah)
Mountain cranberry. Lingonberry. ERICACEAE.

Low-creeping, evergreen, matted shrub, 5 to 15 cm (2 to 6 in) tall; leaves 10 to 20 mm (3/8 to 3/4 in) long, 6 to 10 mm (1/4 to 3/8 in) wide, obovate, oblong or elliptic, edges rolled under, leathery, shiny green above, light green with short, stiff brown hairs below; one to several nodding flowers, in terminal raceme (fig. 103); pink bell-shaped petals; fruit a sour, red berry.

HABITAT: Distributed from sea level to alpine. Subalpine and alpine—bogs, acidic soils, woods, heath.

USES: Berries are picked after the first frost and are a good source of vitamin C. Although sour, they have a better flavor than the commercial cranberry. Used for jams, jellies, relishes, and beverages. An infusion of leaves was useful for bladder problems, and a decoction of the leaves was used for gout and rheumatism.

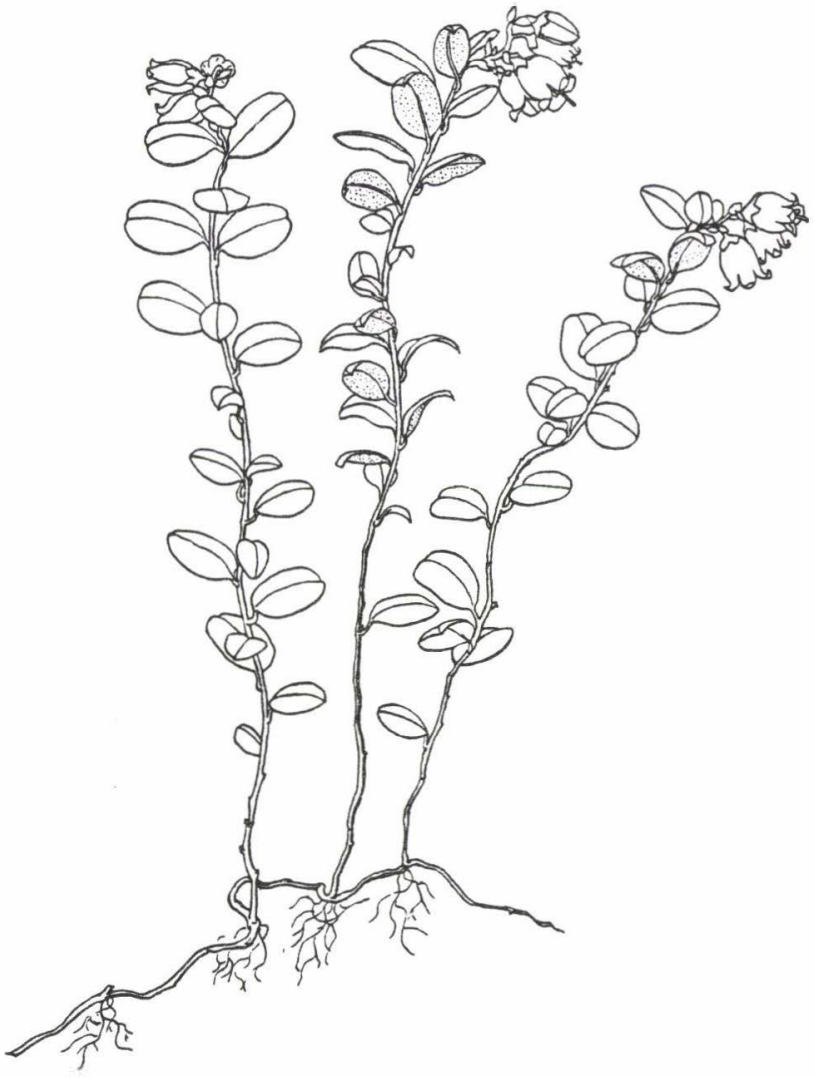

Figure 41—Mountain cranberry, *Vaccinium vitis-idaea* L.

Figure 42

Gentiana glauca Pall.
(jen che ah nah) (glau kah)
Bluegreen gentian. GENTIANACEAE.

Slender, much branched rhizome; stems simple, erect, 3 to 15 cm (1-3/16 to 6 in) tall, blue-purple, hairless; yellow-green nonstalked leaves mainly basal, obovate to ovate, thick, smooth, hairless, entire margins, yellow-green nonstalked stem leaves elliptic to ovate, 8 to 13 mm (1/4 to 1/2 in) long, three to four pairs; flowers at end of stem, short stalked, enveloped by the upper leaves, four to numerous; sepals purplish, five toothed, lobes shorter than tube; petals broadly tubular, not expanding at throat, folded-in sinuses, bluish-green.

HABITAT: Subalpine and alpine—meadows, heaths, rocky slopes. Heaths and meadows of lower and middle alpine.

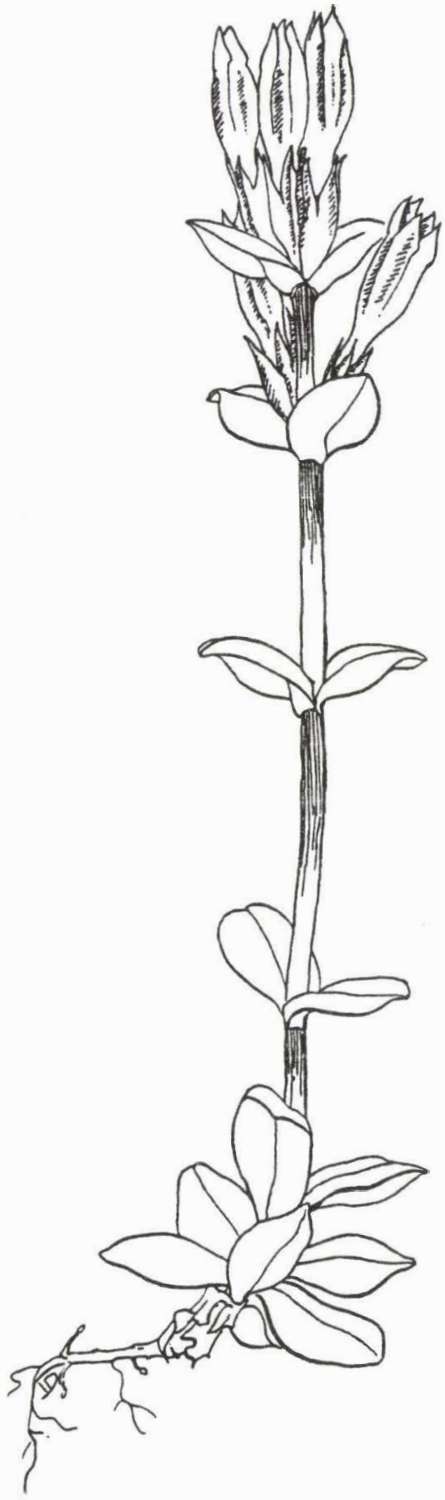

Figure 42—Bluegreen gentian, *Gentiana glauca* Pallas.

Figure 43

Gentiana platypetala Griseb.
(jen che ah nah) (pla teh peh tah lah)
Broadpetaled gentian. GENTIANACEAE.

Long, thick, horizontal rhizome; erect or ascending simple stems, 10 to 35 cm (4 to 14 in) tall, lacking basal rosette; nonstalked, opposite stem leaves ovate to elliptic, 1.5 to 3.2 cm (9/16 to 1-1/4 in) long, increasing in size above; single, nonstalked flower on end of stems; tubular sepals two lipped, one lip two toothed, the other three toothed; bright blue, funnel-shaped petals, pale blue at base, greenish to reddish spots on inside, overlapping kidney-shaped lobes,

HABITAT: Alpine—meadows, grassy slopes, rocky exposures, weathered rocky outcrops, gravelly soils.

Gentiana prostrata Haenke (jen che ah nah) (pro stra tah) (moss gentian) also may occur. Stems from thin root, prostrate or ascending, 2 to 25 cm (3/4 to 10 in) tall, branched from the base; three to four pairs of ovate stem leaves with white margins; small single flowers, blue tubular petals.

HABITAT: Subalpine and alpine—wet mossy areas, wet meadows, woods, wet heaths. So sensitive to light, the flower closes if a cloud passes over or if a hand is held over it.

Figure 43—Broadpetaled gentian, *Gentiana platypetala* Griseb.

Figure 44

Geranium erianthum DC.
(ja rah nee um) (eh ree an thum)
Northern geranium. GERANIACEAE.

Thick, scaly, woody, light brown rhizome; ascending to erect, hairy stems 10 to 50 cm (4 to 20 in) tall; basal leaves long stalked, orbicular, much broader than long, three to five times divided, cut nearly to base, margins divided into narrow, pointed lobes, unstalked upper leaves similar; three to five flowers on axillary (from leaf axil) stalk, barely overtopping leaves; flower large, showy, blue to pink-purple; hairy sepals lanceolate-ovate, ending in a slender bristle; petals twice as long as sepals, ciliate at base, blue to pink-purple; style 25 to 32 mm (1 to 1-1/4 in) long, including beak, hairy; beak 6 to 9 mm (1/4 to 3/8 in) long, hairy base.

HABITAT: Widely distributed from sea level to alpine meadows. Subalpine and alpine—woods, meadows, gravel soils, rock outcrops, dry heaths, gravelly soils.

USES: The leaves have been used as a poultice to hasten the healing of open wounds. A tea made from the leaves and stems has been used to treat dysentery and sore throats. The roots, once dried and powdered, were used to stop bleeding from cuts, scratches, and wounds. The rhizome was considered an antiseptic and has been used to increase urine flow, reduce swelling, and treat diarrhea.

Figure 44—Northern geranium, *Geranium erianthum* DC.

Figure 45

Hippuris vulgaris L.
(hip pyou ris) (vul gar is)
Marestail. HALORAGACEAE.

Stout creeping rhizome; aerial stem weak and limber, 10 to 40 cm (4 to 16 in) tall, 1.5 to 5 mm (1/16 to 3/16 in) thick; leaves 8 to 12 in whorl (fig. 90), 6 to 30 mm (1/4 to 1-1/8 in) long, 1 to 2 mm (1/16 to 1/8 in) wide, linear (fig. 91), nonstalked, entire margins; flowers small, in axils of submerged leaves; growing in water, usually at least partly submerged.

HABITAT: Distributed from sea level to alpine. Subalpine and alpine—shallow ponds.

Hippuris montana Ledeb. (hip pyou ris) (mon tah nah) (mountain marestail) also can be found. Stems less than 1 mm (1/16 in) thick; mostly 1.5 to 8 cm (9/16 to 3-1/8 in) tall; leaves five to eight per whorl, 2 to 6 mm (1/16 to 3/16 in) long.

HABITAT: Subalpine and alpine—ponds.

USES: Alaska Indians used the shoots as a potherb or to make soup. The plant parts are tender and can be gathered in any stage of growth.

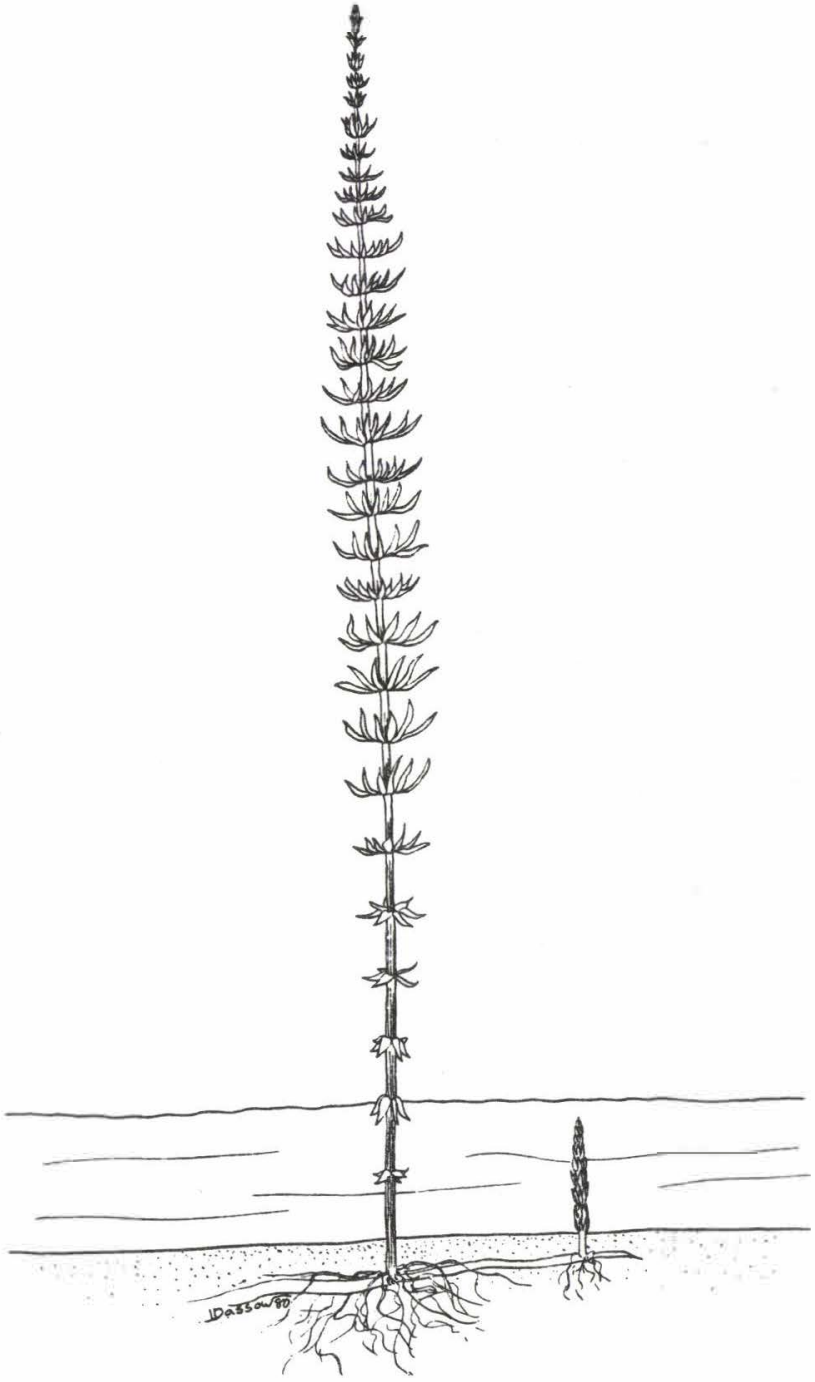

Figure 45—Common marestail, *Hippuris vulgaris* L.

Figure 46

Lupinus nootkatensis Donn
(loo peh nus) (noot kah ten sis)
Nootka lupine. LEGUMINOSAE.

Long woody root; lower part of stem woody, upper part nonwoody (herbaceous); 30 to 90 cm (1 to 3 ft) tall, erect or ascending, stout, often hollow, with stiff, flat hairs to long, soft, wavy hairs; alternate stem leaves on long stalks, 2 to 10 cm (3/4 to 4 in) long, seldom twice as long as the leaflets, palmately compound (fig. 87), five to nine leaflets, oblanceolate to elliptic, 1 to 7 cm (3/8 to 2-3/4 in) long, 0.3 to 2 cm (1/8 to 3/4 in) wide, hairy below, smooth, hairless above; flowering stem densely hairy; raceme (fig. 103) 5 to 35 cm (2 to 14 in) long; sepals united to form two lips, upper lip formed from two fused sepals, lower lip from three fused sepals; lower lip broad, boat shaped, often bent backwards; flowers blue, white near the base; fruit with long silky hair, 3 to 6 cm (1-3/16 to 2-3/8 in) long, flattened oblong, opening along two prominent sutures.

HABITAT: Widely distributed from sea level to alpine. Subalpine and alpine—gravelly soils, open meadows, rocky slopes, heaths, cliffs, rock outcrops.

USES: An important poisonous plant. The fruit and seeds are considered to be the most poisonous part of the plant, but the other plant parts may cause illness. The seeds have been known to cause inflammation of the stomach and intestines.

Figure 46—Nootka lupine, *Lupinus nootkatensis* Donn.

Figure 47

Oxytropis campestris (L.) DC.
(ok se tro pis) (kam pes tris)
Northern oxytrope. LEGUMINOSAE.

Branching woody lower stem, more or less covered with disintegrated brownish stipules; plants densely tufted, appearing stemless, usually less than 15 cm (6 in) tall; leaves basal, 4 to 21 cm (1-9/16 to 8 in) long; 11 to 45 opposite leaflets, ovate to narrowly lanceolate, hairy on both sides, edges roll upward, leaflets boat shaped; stipules lanceolate, sharp pointed, joined to the base of the leaf stalk, straw-colored to black, ciliated margins; hairy, reddish-green flower stem, 3.5 to 36 cm (1-3/16 to 14-5/16 in) long, hairy raceme (fig. 103) 2 to 26 cm (3/4 to 10-1/4 in) long; flowers 10 to 17 mm (3/8 to 11/16 in) long, whitish, yellowish, pink or purplish; reddish-green sepals united, tube 4 to 6 mm (1/8 to 3/16 in) long with narrow, black, hairy teeth 1.5 to 3 mm (1/16 to 1/8 in) long; petals united to form a banner, two wings and a keel, banner (upper petal) is longer than the other petals, the wings are lateral to the banner, keel sometimes with purplish spots near apex; nonstalked, erect pods, 8 to 16 mm (5/16 to 5/8 in) long, with long soft hair.

HABITAT: Distributed from sea level to alpine. Subalpine and alpine—gravelly areas, rock outcrops, open meadows, dry heaths.

Figure 47—Northern oxytrope, *Oxytropis campestris* (L.) DC.

Figure 48

Pinguicula vulgaris L.
(pin gwik yoo lah) (vul gar is)
Common butterwort. Bog violet. LENTIBULARIACEAE.

Leaves yellow-green, succulent, forming a basal rosette, 1.2 to 5 cm (1/2 to 2 in) long, 0.8 to 2.4 cm (5/16 to 1 in) wide, margins rolled, oblanceolate to elliptic (figs. 92, 93), covered with sticky substance that traps and digests insects; flowers nodding, blue to violet, funnel-shaped tube, white hairs in throat; spur long, blunt; flowers 12 to 25 mm (1/2 to 1 in) long.

HABITAT: Widely distributed from sea level to alpine. Subalpine and alpine—bogs, ponds.

Pinguicula villosa L. (pin gwik yoo lah) (veel low sah) (hairy butterwort) also occurs but is less common. Leaves 0.4 to 1.5 cm (3/16 to 5/8 in) long, 0.2 to 0.7 cm (1/16 to 5/16 in) wide; flowers small, 6 to 10 mm (1/4 to 3/8 in) long, flower stalk with long, soft, wavy hairs.

HABITAT: Widely distributed from sea level to alpine. Subalpine and alpine—bogs, ponds.

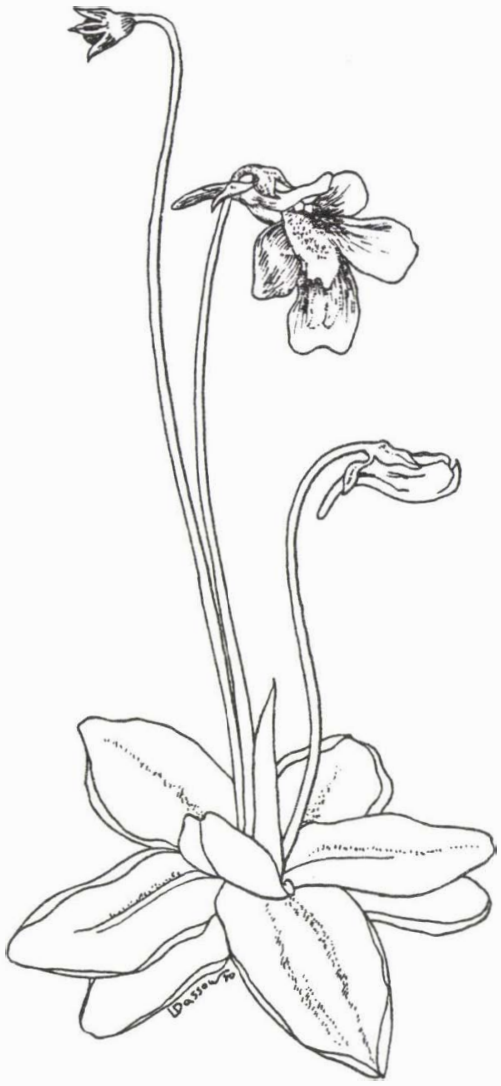

Figure 48—Common butterwort, *Pinguicula vulgaris* L.

Figure 49

Fauria crista-galli (Menzies) Makino
(fow ree ah) (cris tah-gal lee)
Deercabbage. MENYANTHACEAE.

Thick, fleshy, reddish-brown rhizomes covered with old leaf remains; leaves thick, 2 to 7 cm (3/4 to 2-3/4 in) long (from sinus to tip), 5 to 14 cm (2 to 5-1/2 in) wide, cordate to kidney shaped; margins finely round toothed; flowers few to several on long naked stalks; petals white, wheel shaped, the tube 2 to 4 mm (1/8 to 3/16 in) long, lobes 5 to 6 mm (1/4 to 5/16 in) long, midvein and margins with wavy edges.

HABITAT: Distributed from sea level to alpine. Subalpine and alpine—bogs, wet meadows, margin of pools, seeps.

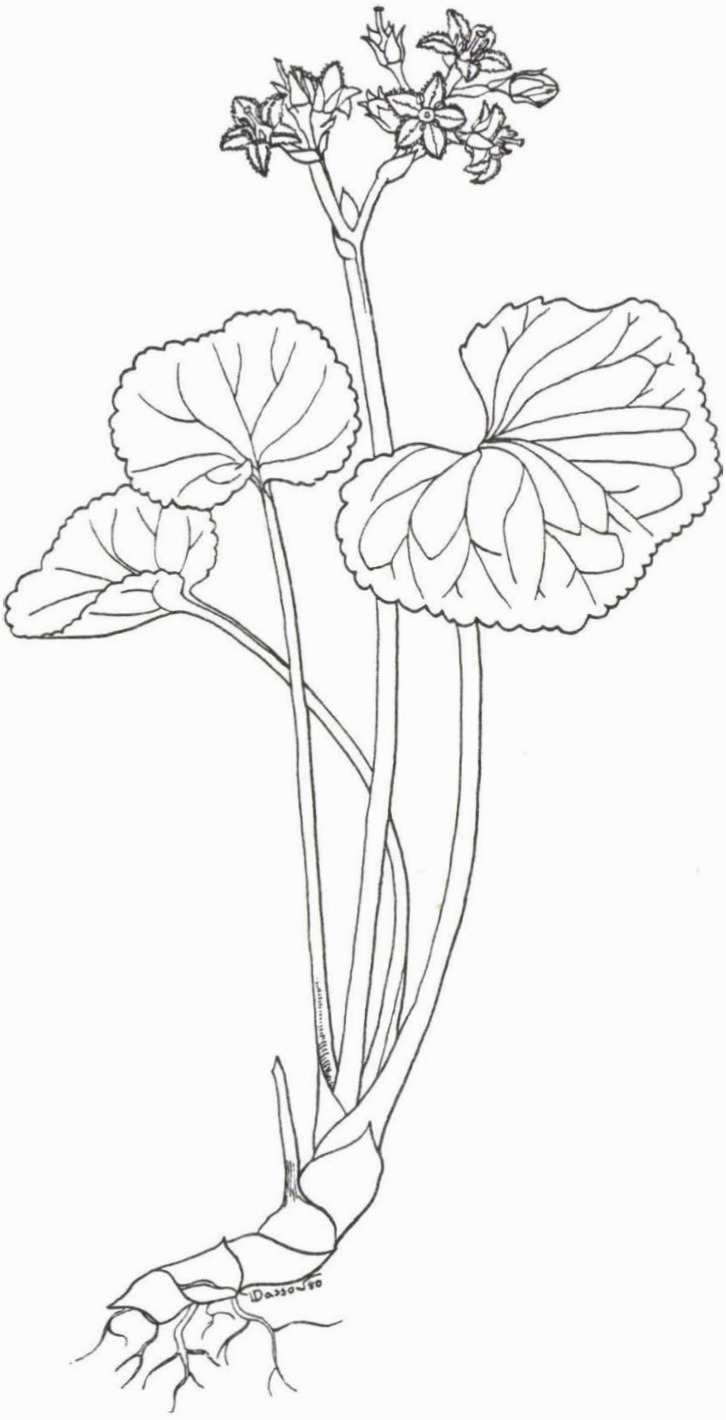

Figure 49—Deercabbage, *Fauria crista-galli* (Menzies) Makino.

Figure 50

Epilobium alpinum L.
(eh peh lo bee um) (al peh num)
Alpine willowherb. ONAGRACEAE.

Plant grows from slender, elongated rhizomes and stolons, no buds present; stems reddish-purple, basally reclining on the ground to ascending, 4 to 50 cm (1.5 to 20 in) tall, hair in lines below the leaf attachments or nearly hairless, simple to branched; leaves opposite, upper ones alternate, narrowly oblong to elliptic, margins entire to toothed, most leaves nonstalked; flowers small, nodding, mostly one or two; sepals united at base, reddish-green, 2 to 5 mm (1/16 to 3/16 in) long; four reddish-violet to pink petals, 3 to 8 mm (1/8 to 1/4 in) long; capsulses 2 to 7 cm (3/4 to 2-3/4 in) long.

HABITAT: Alpine—moist meadows, bogs, streams, moist soils.

USES: Young leaves, stems, and flowers are edible. Eaten raw or cooked.

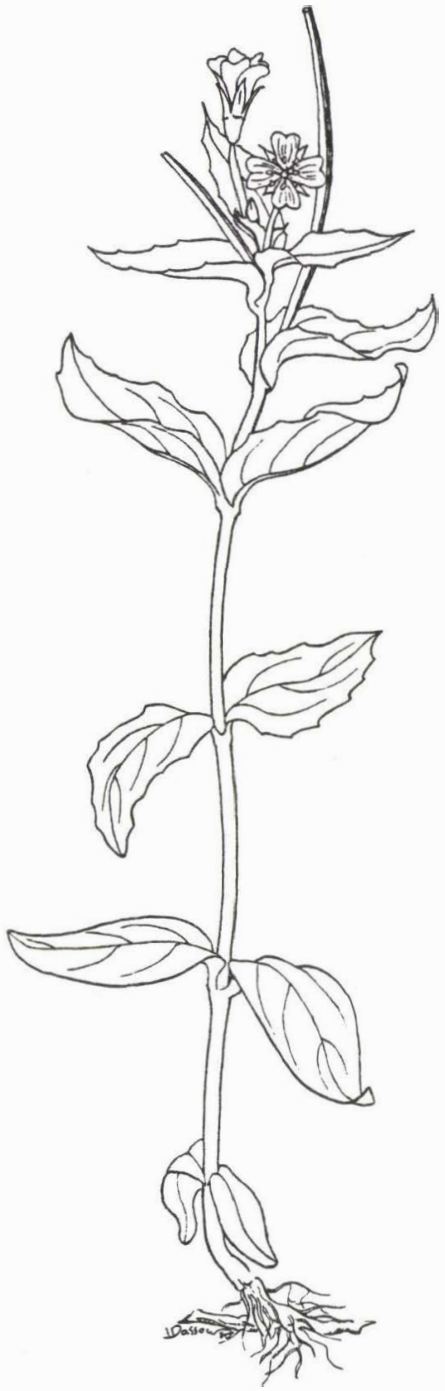

Figure 50—Alpine willowherb, *Epilobium alpinum* L.

Figure 51

Epilobium latifolium L.
(eh peh lo bee um) (lah teh fo lee um)
Dwarf fireweed. River beauty. ONAGRACEAE.

Slender roots, no rhizomes; lower part of stem persistent, one to several stems, occasionally having short branches, reclining on ground to ascending, 10 to 40 cm (2 to 16 in) tall, minutely hairy throughout; leaves opposite below, alternate above, nonstalked, thick, elliptic-ovate to lanceolate, 2 to 8 cm (13/16 to 3-1/8 in) long, usually hairy; flowers in upper leaf axil, few to many, forming an elongated raceme (fig. 103), the lower flowers blooming first; purple-tinged, hairy sepals, 10 to 18 mm (3/8 to 11/16 in) long; petals pink-purple, 15 to 30 mm (9/16 to 1-3/16 in) long; capsule 2 to 9 cm (3/4 to 3-9/16 in) long, rose-purple.

HABITAT: Widely distributed from sea level to alpine. Subalpine and alpine—meadows, moist gravel slopes, edge of streams, rocky outcrops.

USES: Young leaves, stems, and flowers are edible in spring, becoming tough and bitter in summer. Can be eaten raw or cooked. Cooked fireweed tastes like spinach.

Figure 51—Dwarf fireweed, *Epilobium latifolium* L.

Figure 52

Oxyria digynia (L.) Hill
(ok se ree ah) (deh jeh nee ah)
Alpine mountain sorrel. POLYGONACEAE.

Long, stout taproots, bearing thin, dry scales; reddish-tinged stems, 10 to 30 cm (4 to 12 in) tall, juice sharp or biting to the taste; kidney-shaped leaves mostly basal, 1 to 10 cm (3/8 to 4 in) long, 0.6 to 6 cm (3/16 to 2-3/8 in) wide, fleshy, long stalked, five to seven palmately arranged veins, margins entire; small numerous, greenish to crimson flowers at the end of the stem; petals and sepals alike, 1.5 to 2.5 mm (1/16 to 1/8 in) long; two outer segments (sepals) broad and flat, two inner, boat-shaped, segments lying flat, about one-half as broad as long; orbicular achene with bright red or purplish wings, shallowly notched at base and apex.

HABITAT: Subalpine and alpine—cold, wet areas, snowbelts, wet woods, rocky snow channels, rocky slopes, gravel soils.

USES: The leaves but not the root can be eaten raw and are a good source of vitamin C. Indians cooked the leaves as a potherb or fermented it like sauerkraut. The leaves resemble the taste of rhubarb when cooked. The juice was sweetened and thickened with flour.

Figure 52—Alpine mountain sorrel, *Oxyria digynia* (L.) Hill.

Figure 53

Polygonum viviparum L.
(poh lee go num) (vee vee par um)
Alpine bistort. POLYGONACEAE.

Fleshy, thickened, solid, underground stem, usually twisted, covered with bright reddish-brown scales, narrowly ovate to lanceolate; stem erect, simple, green, hairless, 5 to 30 cm (2 to 12 in) tall; basal leaves with slender leaf stalks, 2 to 12 cm (3/4 to 4-3/4 in) long, blades lanceolate to oblong, 1.5 to 9 cm (9/16 to 4 in) long, dark green, hairless above, pale green, sparsely hairy below, midrib very prominent, stem leaves reduced in size upward, upper ones usually unstalked, lower part of leaf blade surrounding the stem; spikelike cluster of white or pinkish-white small flowers near the top, brownish bulblets (small plants) near the base; petals and sepals alike, united near base, five lobed, greenish at base, white to pinkish apically.

HABITAT: Distributed from sea level to alpine. Subalpine and alpine—dry meadows, heath slopes, gravelly slopes.

USES: Entire plant is edible. Underground stem was collected in spring and eaten raw. It was said to taste like raw almonds. The root was roasted. Leaves and stems cooked as potherb. Peppery tasting leaves usually used for seasoning salads and soups. A decoction of bistort was considered an excellent remedy for diarrhea. It was used for gum problems and for inflammation of the mouth.

Figure 53—Alpine bistort, *Polygonum viviparum* L.

Figure 54

Dodecatheon pulchellum (Raf.) Merrill
(do deh ka the on) (pool chel lum)
Pretty shootingstar. PRIMULACEAE.

Lower part of stem persistent, short, thick, erect; stem 12 to 60 cm (4-3/4 to 24 in) tall; leaves all basal, oblong to lanceolate, 3 to 30 cm (1-3/16 to 20 in) long, 1 to 6 cm (3/8 to 2-3/8 in) broad, entire, erect, with winged leaf stalks; flower stalk 7 to 50 cm (1-3/4 to 20 in) long, 3 to 20 flowers hanging downward from end of flower stalk; petals bent backward over ovary and part of flower stalk, magenta to lavender; staminal filaments united into downward pointing orange tube, 0.5 to 3.5 mm (1/16 to 1/8 in) long.

HABITAT: Distributed from sea level to alpine. Subalpine and alpine—moist meadows, moist heaths, moist slopes, bogs.

Dodecatheon jeffreyi Van Houtte (do deh ka the on) (jef free eye) (Jeffrey shootingstar) also may occur. It is a larger and stouter plant; the anthers with very short, less than 1.5 mm (1/16 in) long, filaments usually not visible in flower; stigma twice the diameter of the style.

HABITAT: Subalpine and alpine—bogs, mossy rock, snow channels, wet meadows, wet slopes.

USES: The leaves and roots were roasted or boiled.

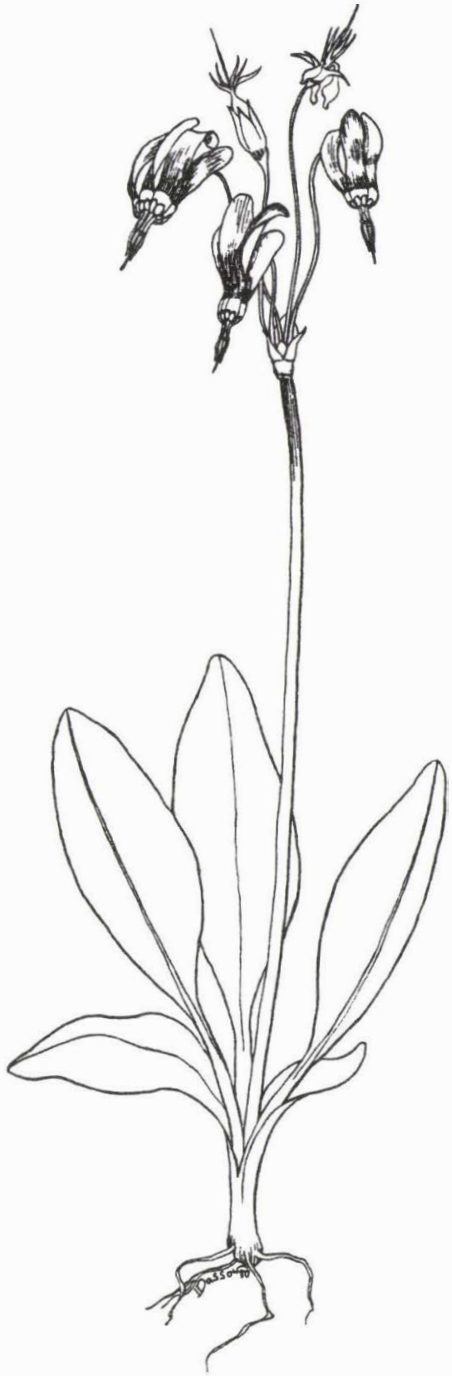

Figure 54—Pretty shootingstar, *Dodecatheon pulchellum* (Raf.) Merrill.

Figure 55

Primula cuneifolia Ledeb.
(pri myoo lah) (kyoo nee eh foh lee ah)
Wedgeleaf primrose. PRIMULACEAE.

Fibrous roots; plant appears to be stemless, 1.5 to 6 cm (9/16 to 2-5/16 in) tall, including leafless flower stalk; all leaves in basal rosette, leaf tapering to base of leaf stalk, 5 to 11 teeth in tip, thick, hairless, 0.5 to 2 cm (3/16 to 3/4 in) wide, 0.5 to 4 cm (3/16 to 1-9/16 in) long, including leaf stalk; flowers subtended by small, linear to lanceolate bracts, sharp pointed at tip, united at base; one to two flowers; reddish-green sepals united into tube, teeth longer than tube; petals pink to rose-violet, the tube slightly longer than the sepals, the limbs flaring horizontally, deeply two lobed, 10 to 24 mm (3/8 to 2 in) broad.

HABITAT: Alpine—stony slopes, heaths, open meadows.

Figure 55—Wedgeleaf primrose, *Primula cuneifolia* Ledeb.

Figure 56

Trientalis europaea L.
(tree en tal is) (yoo roh peh ah)
Arctic starflower. PRIMULACEAE.

Simple, erect stem arising from slender rhizomes, 5 to 35 cm (2 to 14 in) tall; leaves simple, entire, alternate below a crowded whorl, leaves obovate to lanceolate in whorl of five to six at top of stem; one to three flowers on long slender stalks; petals white or pinkish-white, united at the base.

HABITAT: Widely distributed from sea level to alpine. Subalpine and alpine—woods, meadows, moist slopes.

Figure 57

Aconitum delphinifolium DC.
(ah koh nee tum) (del fin ee foh lee um)
Monkshood. RANUNCULACEAE.

Plant grows from short, stout more or less woody taproot; stems simple, erect, 8 to 125 cm (3-3/16 to 50 in) tall, smooth, hairless below, hairy above; alternate leaves palmately five lobed, cut to the base, mostly on the stem, 5 to 25 cm (2 to 10 in) long, largest leaves at base, reduction in size upward; large, showy flowers subtended by bracts; five blue-purple petallike sepals with dark veins, white near base, upper helmet-shaped sepal forming hood that covers flower parts, 2 to 3 cm (3/4 to 1-1/8 in) long, lateral sepals oval, broader than lower two.

HABITAT: Subalpine and alpine—meadows, heaths, gravel slopes.

USES: Poisonous. The roots contain aconitum, an ester alkaloid, which paralyzes the nerves, retards respiration, impairs speech, lowers the body temperature and blood pressure, causes oppressive pain in the chest, muscular weakness, vomiting, and diarrhea. Death usually occurs within a few hours. It has long been known as a source of poison for use on arrows to destroy wolves, thus the name wolfbane is also used.

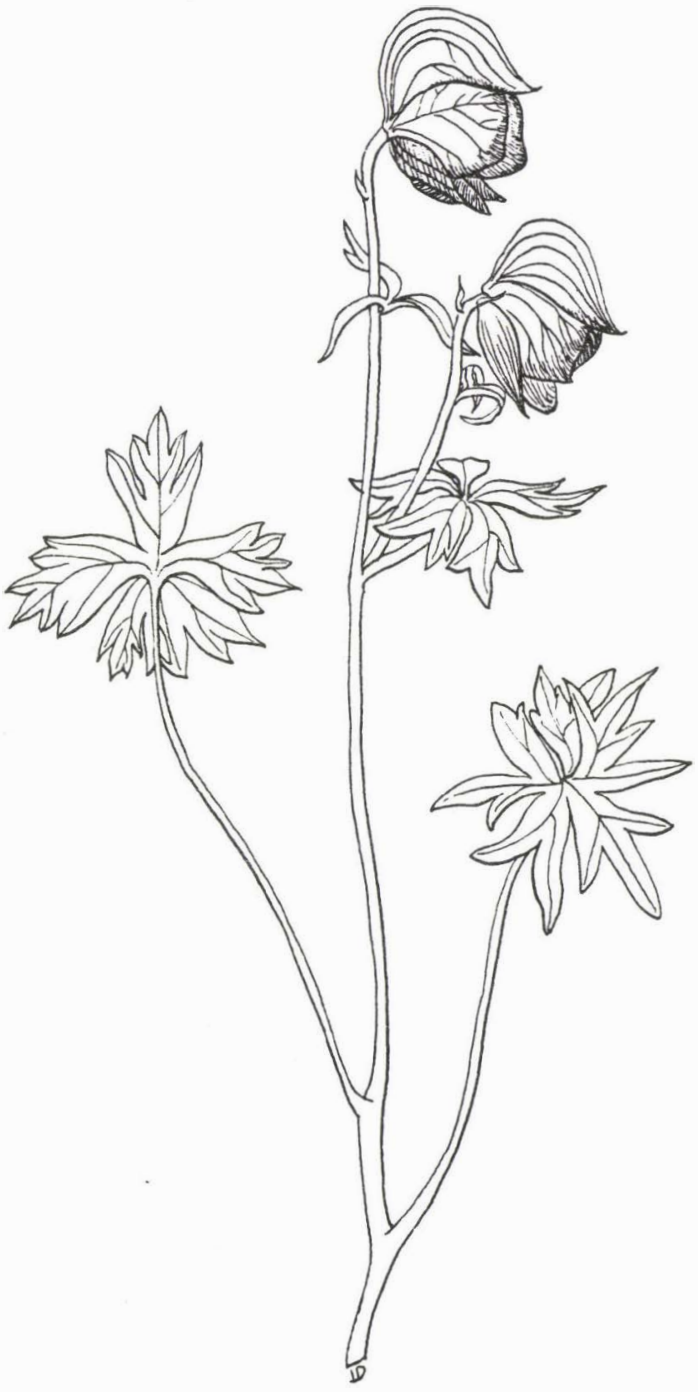

Figure 57—Monkshood, *Aconitum delphinifolium* DC.

Figure 58

Anemone narcissiflora L.
(ah neh mo nee) (nar sis seh flor ah)
Narcissus anemone. RANUNCULACEAE.

Large fibrous covered rootstock, 5 to 10 mm (1/8 to 3/8 in) in diameter; one to several erect or ascending stems, 5 to 60 cm (2 to 23 5/8 in) tall, with long silky hair; three-parted leaves mostly basal, ovate to round in outline, the leaflets divided to below the middle, with ciliate margins, stem leaves in one whorl below the flower, covered with silky hairs; one to five large, showy, white to creamy-white flowers at the end of the stem, one flower per stalk; petals lacking, petallike sepals, 12 to 20 mm (7/16 to 3/4 in) long, often bluish tinged on the outer surface; achene smooth, hairless, 6 to 9 mm (1/4 to 3/8 in) long, beak very short.

HABITAT: Alpine—snowbeds, meadows, stony slopes, heaths.

USES: Anemones contain ranunculin, which breaks down to yield toxic protoanemonin. King Island Eskimo use anemones as we use cress, soured or prepared in oil. Oil plus greens beaten to creamy consistency formed Eskimo ice cream. Early spring growth on the upper end of the root was eaten. Indians used anemone roots for treating wounds and attributed to them powerful healing qualities.

Figure 58—Narcissus anemone, *Anemone narcissiflora* L.

Figure 59

Anemone parviflora Michx.
(ah neh mo nee) (par veh flor ah)
Northern anemone. RANUNCULACEAE.

Slender, elongate, scaly rhizome; stems simple, erect, 10 to 35 cm (4 to 13-3/4 in) tall, lower part often red; most leaves basal, long, slender stalks, blade divided into three lobes, smooth, hairless above, waxy below, stem leaves in one whorl below flower, three lobed, 0.7 to 2.8 cm (1/4 to 1-1/16 in) long, silky hair; flowers white, often tinged with blue on outside, silky hair externally, one flower at end of stem; no petals, petallike sepals, 5 to 9 mm (1/16 to 3/8 in) wide, 12 to 18 mm (1/2 to 13/16 in) long, rounded at tip; achene densely woolly, beak slender.

HABITAT: Alpine—snowbeds, stony slopes, heaths, meadows.

USES: Same as those for *Anemome narcissiflora*.

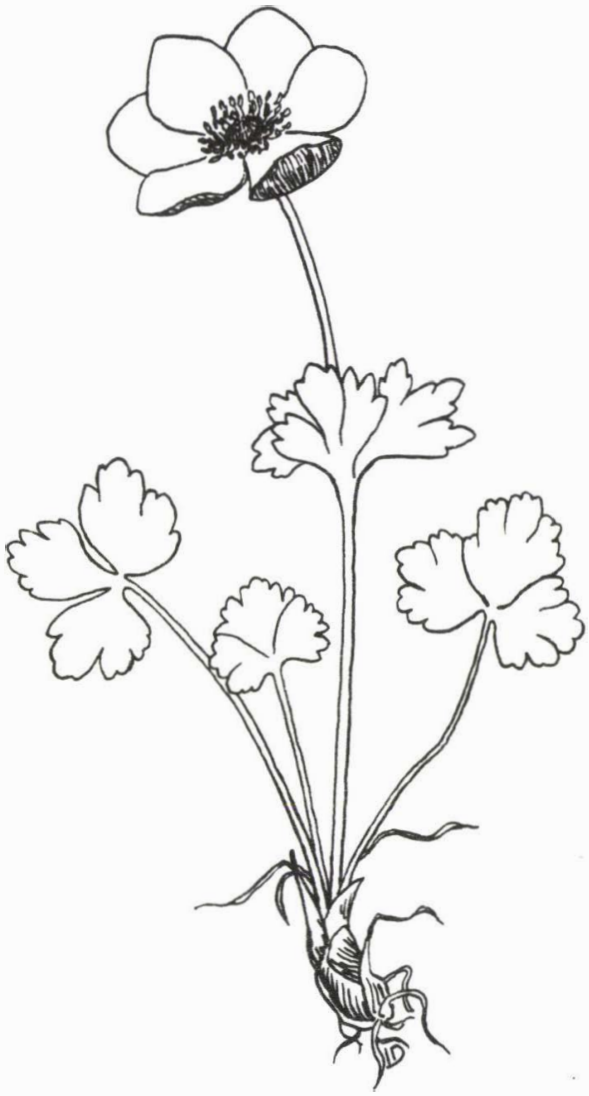

Figure 59—Northern anemone, *Anemone parviflora* Michx.

Figure 60

Aquilegia formosa Fisch.
(ah kwee leh gee ah) (for mo sah)
Western columbine. RANUNCULACEAE.

Stout taproot; stem branched, erect, 30 to 105 cm (1 to 3-1/2 ft) tall, hairless from flowers down, glandular above; leaves mainly basal, divided into three segments, 10 to 30 cm (4 to 12 in) long, smooth to hairy on both surfaces, whitish below, stem leaves reduced in size; basal portion of each petal extends backward between petallike sepals forming reddish spur, blade of petal yellow, spur and blade 15 to 20 mm (9/16 to 3/4 in) long; five red sepals 14 to 27 mm (9/16 to 1-1/16 in) long, not spurred; styles more than 10 mm (7/16 in) long; five hairy follicles.

HABITAT: Widely distributed from sea level to alpine. Subalpine and alpine—rocky slopes, cliffs, open woods, meadows.

USES: Roots were boiled or roasted and eaten. Leaves were used in decoctions for sore mouths and throats. Crushed seeds were used for headaches. One-eighth ounce of seeds taken in wine with saffron opened obstruction of the liver and was good for jaundice. It caused profuse sweating. A lotion made from the fresh root was rubbed on affected areas to relieve rheumatic aches and pains.

Figure 60—Western columbine, *Aquilegia formosa* Fisch.

Figure 61

Caltha leptosepala DC.
(kal thah) (lep toe seh pa lah)
Mountain marshmarigold. RANUNCULACEAE.

Fibrous roots; single erect stem, 5 to 40 cm (2 to 16 in) tall, hairless, smooth, lower part covered with brown fibrous leaf bases; flowering stem leafless or one-leaved; leaves mostly basal, leaf stalk 2 to 20 cm (3/4 to 8 in) long, blade 1.5 to 2.5 cm (9/16 to 1 in) long (sinus to tip), cordate, longer than broad, rounded-tooth margins, palmately veined, hairless on both surfaces; large flower white, tinged with blue at the base, flower usually single, sometimes two-flowered; petals lacking; 6 to 12 petallike sepals, 12 to 27 mm (1/2 to 1-1/16 in) long; numerous yellow stamens that give a conspicuous yellow center; follicles straight beaked, spreading.

HABITAT: Alpine—snowbeds, bogs, streams, moist meadows.

Caltha biflora DC. (kal thah) (bi flor ah) (twinflower marshmarigold) also may occur. Leaves distinctly broader than long, the sinus not apparent, the basal lobes overlapping.

HABITAT: Alpine—snowbeds, bogs, streams, moist meadows.

USES: Leaves and flower buds were eaten raw or cooked. Flower buds were soaked in salt water, cooked in spiced vinegar, and used as a substitute for capers. The roots when boiled were said to resemble sauerkraut in general appearance. Caution is advised, as a related species (*Caltha palustris*) contains poisonous helleborin and anemonin. Boiling helps to break down these poisons.

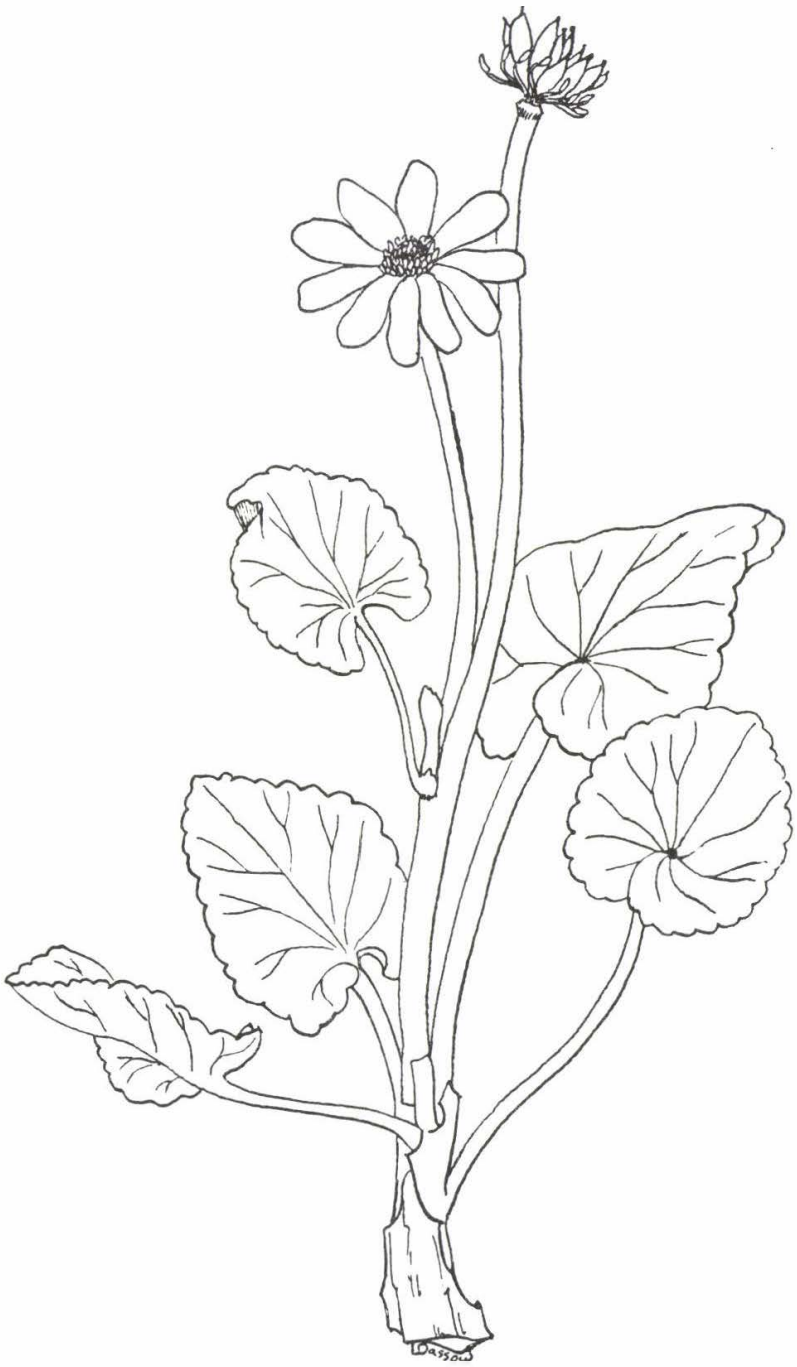

Figure 61—Mountain marshmarigold, *Caltha leptosepala* DC.

Figure 62

Coptis asplenifolia Salisb.
(kop tis) (ah sple nee fo lee ah)
Fernleaf goldthread. RANUNCULACEAE.

Plant 9 to 35 cm (3-1/2 to 14 in) tall; rhizome thick, bright yellow; leaves basal, leaf stalk 1.5 to 11 cm (1/4 to 4-3/8 in) long, leaves pinnate with sharply toothed segments; flower stalk leafless, mostly two-flowered; flowers white; follices spreading, 7 to 10 mm (5/16 to 3/8 in) long, up to 12 in a cluster with a short tip.

HABITAT: Widely distributed from sea level to alpine. Subalpine and alpine—bogs, woods, moist slopes, rocky stream channels.

USES: Indians chewed the roots to treat mouth sores and made tea of the plant to use as a wash for eye irritations and mouth sores. The plant was used in New England to treat fever blisters in childrens' mouths and also to treat indigestion and restore strength after prolonged illness.

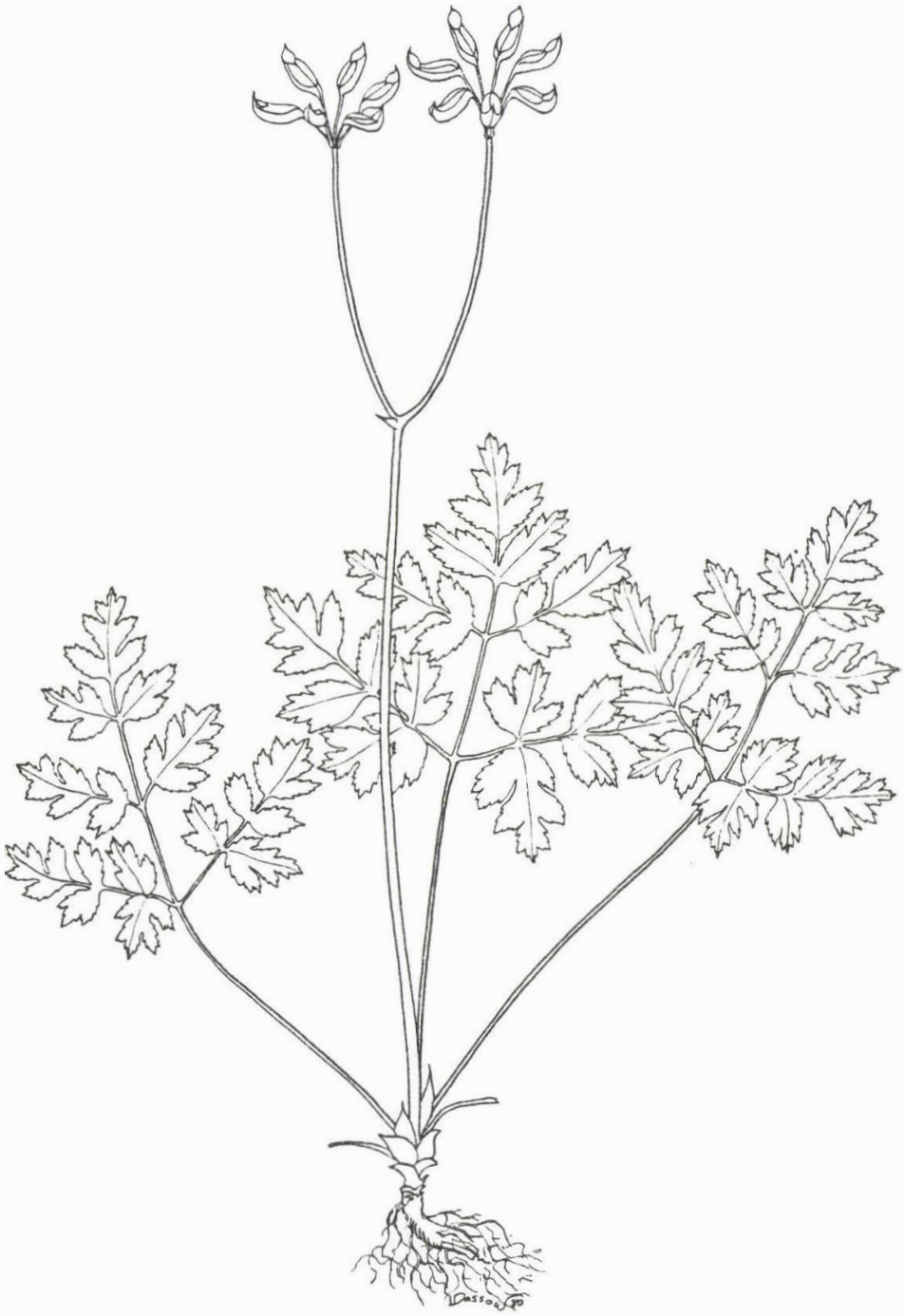

Figure 62—Fernleaf goldthread, *Coptis asplenifolia* Salisb.

Figure 63

Ranunculus cooleyae Vasey and Rose
(ra nun kyoo lus) (coo leh eh)
Cooley buttercup. RANUNCULACEAE.

Fibrous roots; short persistent lower stem, upper stems erect, smooth, hairless, 5 to 30 cm (2 to 12 in) long; leaves all basal, blades simple, 1 to 2.5 cm (3/8 to 1 in) long, orbicular to kidney shaped, three to five lobed, lobes with rounded teeth, no stem leaves; large flower at end of long stalk; five greenish-yellow sepals 7 to 9 mm (1/4 to 5/16 in) long, 7 to 16 narrow, bright yellow petals 7 to 10 mm (1/4 to 3/8 in) long; achenes 30 to 70 or more in a hemispheric cluster, hairless, about 2.5 mm (1/8 in) long, curved beak, 1 to 1.5 mm (1/16 in) long.

HABITAT: Alpine—meadows, slopes, snow beds. Near patches of snow and often blooming beneath the snow.

Ranunculus eschscholtzii Schlecht. (ra nun kyoo lus) (esk sholts ee eye) (Eschscholtz buttercup) also may occur. Petals distinctly longer than sepals; sepals falling off as flower matures; achenes with straight beak, beak 0.8 to 1 cm (5/16 to 3/8 in) long.

HABITAT: Alpine—meadows, talus slopes, snow beds.

USES: All the buttercups are more or less poisonous when eaten raw. The poison is in a volatile yellow oil called protoanemonin. It may be removed from the plant by thorough cooking.

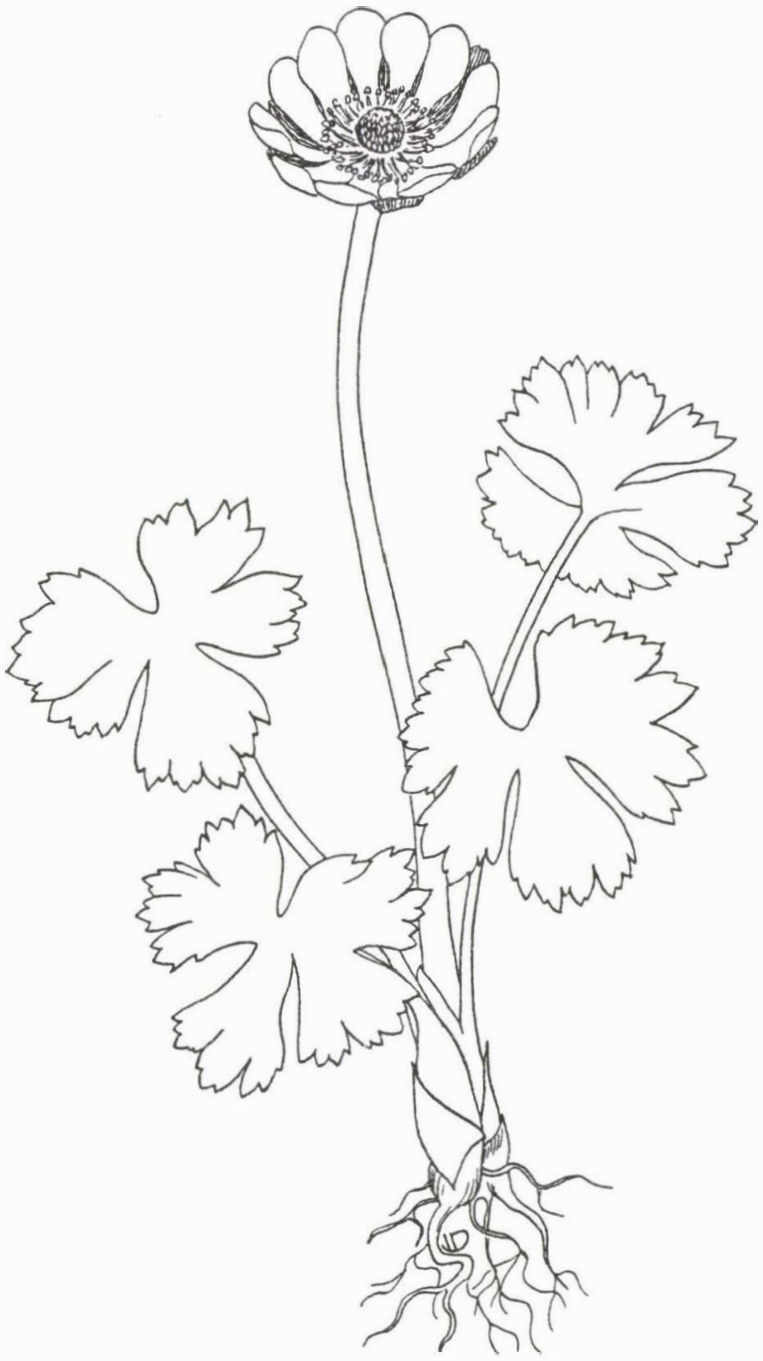

Figure 63—Cooley buttercup, *Ranunculus cooleyae* Vasey & Rose.

Figure 64

Ranunculus occidentalis Nutt.
(ra nun kyoo lus) (oks cee den tah lis)
Western buttercup. RANUNCULACEAE.

Stout, short rhizome; erect, branched stem, 5 to 70 cm (2 to 28 in) tall, not rooting at nodes, usually hairy; basal leaves deeply three to five lobed, the lobes again divided or toothed, stalks long, stem leaves alternate, like basal leaves but smaller above; nonstalked flower bracts with three oblong lobes; several showy flowers, five greenish-yellow sepals bent backwards, hairy, falling off at maturity; five yellow petals, cordate, longer than sepals; 8 to 15 achenes in a hemispheric cluster, hairless, beak 0.5 to 2 mm (1/16 to 1/8 in) long, slightly curved.

HABITAT: Subalpine and alpine—moist meadows, heaths.

USES: All the buttercups are more or less poisonous when eaten raw. The poison is in a volatile yellow oil called protoanemonin. It may be removed from the plant by thorough cooking.

Figure 64—Western buttercup, *Ranunculus occidentalis* Nutt.

Figure 65

Geum calthifolium Menzies
(jee um) (kal thee foh lee um)
Mountain avens. ROSACEAE.

Stout, dark brown rhizome; hairy, erect, red to green stems, 10 to 30 cm (4 to 12 in) tall; one to three nonstalked leaves preceding the flower cluster, most leaves basal, on long hairy stalks, appearing simple but is pinnately compound with one to four tiny leaflets below the greatly enlarged end leaflet, end leaflet orbicular to kidney shaped, 1.5 to 6 cm (9/16 to 2-3/8 in) long, 3 to 19 cm (1-3/16 to 4 in) wide, palmately veined, upper surface dark green, lower surface light green with hairs along veins; yellow, showy flowers; sepals united at base, 8 to 14 mm (5/16 to 9/16 in) long, red veins; petals yellow, broader than long; style hairy along three-quarters of its length.

HABITAT: Alpine—open boggy slopes, moist meadows, heaths, rocky slopes.

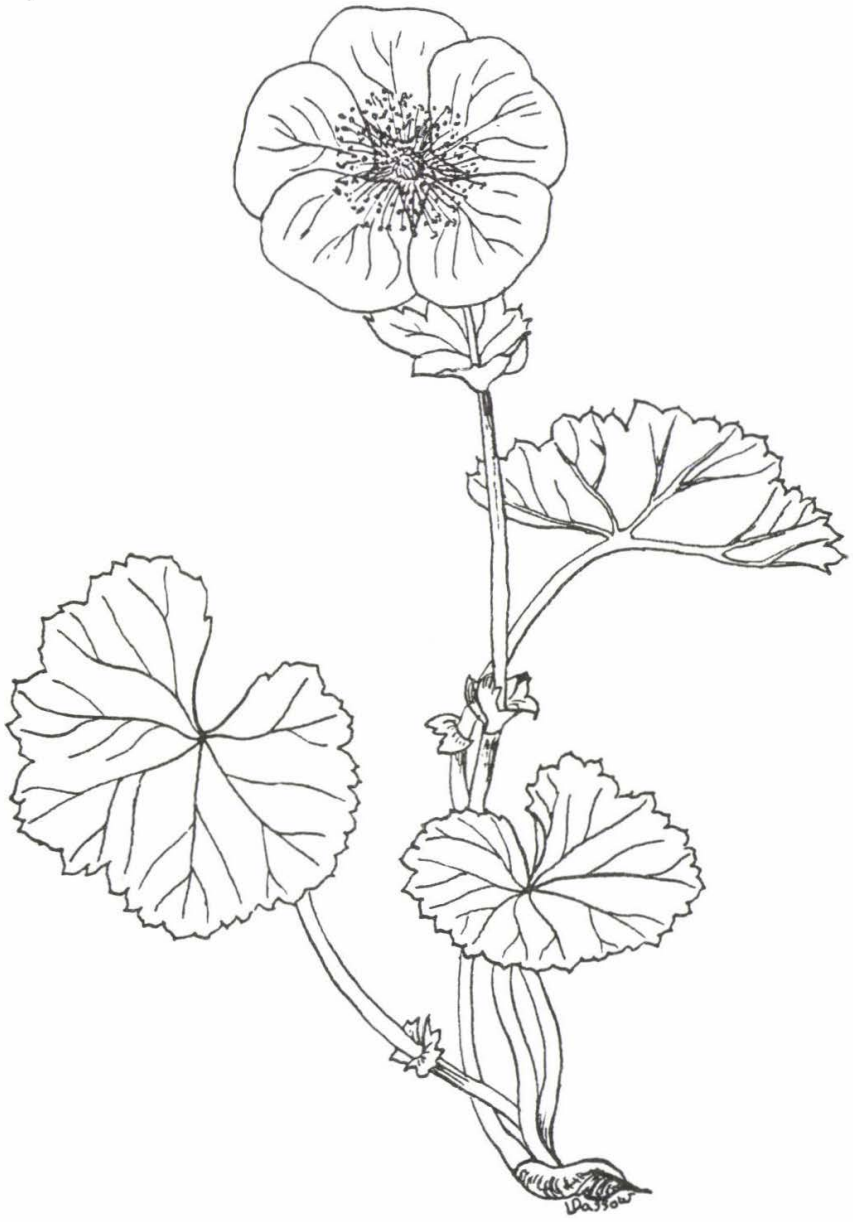

Figure 65—Mountain avens, *Geum calthifolium* Menzies.

Figure 66

Luetkea pectinata (Pursh) Kuntze
(loo et keh ah) (pec teh nah tah)
Luetkea. ROSACEAE.

Mat-forming plant from a rhizome and stolons, lower plant parts persistent; leafy stems erect, 5 to 15 cm (2 to 6 in) tall; alternate leaves above, crowded at base, leaves less than 2.5 cm (1 in) long, fan-shaped, twice divided, the second division forming three narrow pointed segments; racemelike flower cluster on end of leaf stem, 1 to 5 cm (3/8 to 2 in) long; branches hairy, several flowered; five pointed sepals united at the base, smooth, lobes triangular; five white, spreading petals; five podlike follicles with minute seeds.

HABITAT: Subalpine and alpine—moist meadows, exposed rocky areas, heaths, close to snow patches.

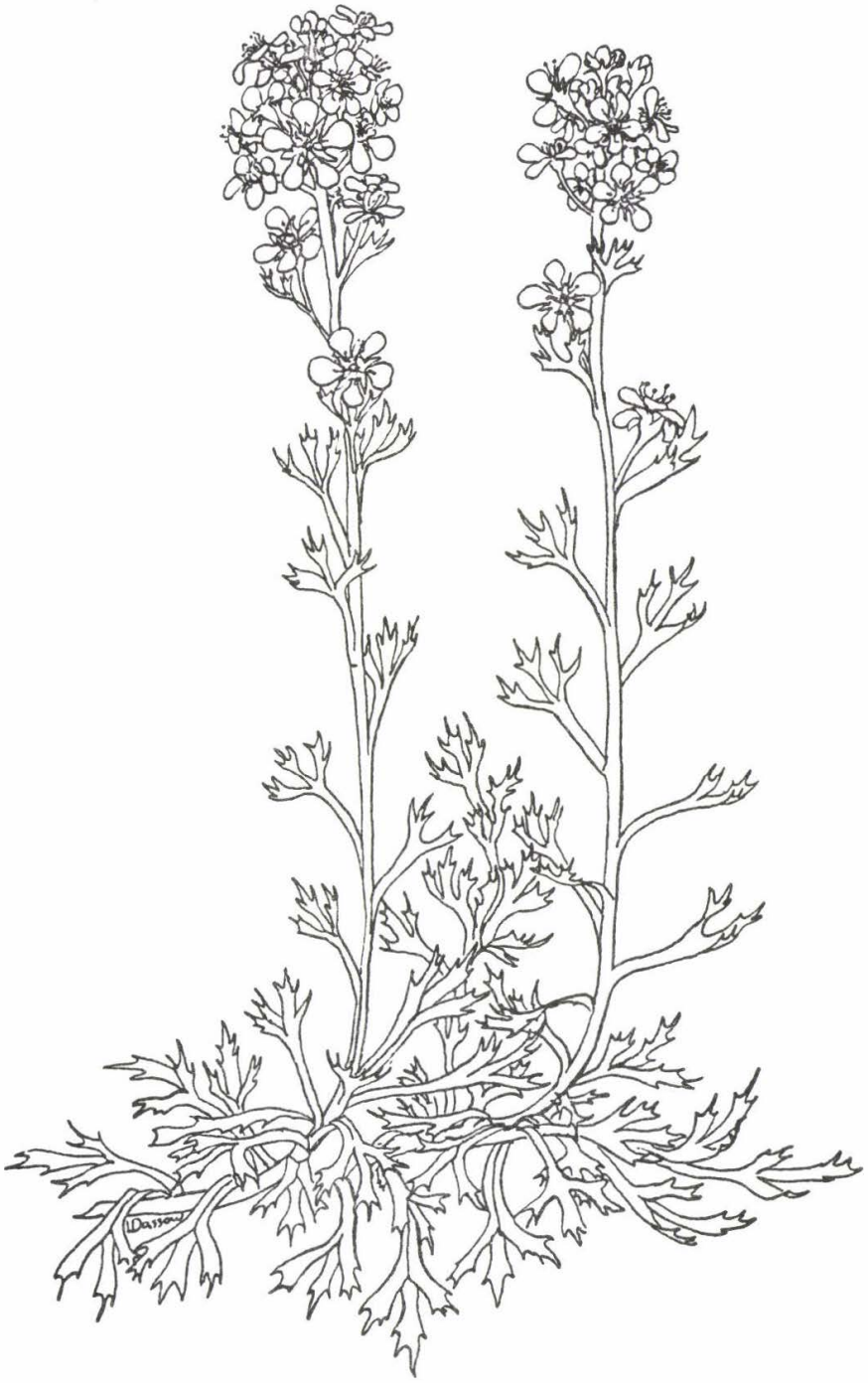

Figure 66—Luetkea, *Luetkea pectinata* (Pursh) Kuntze.

Figure 67

Potentilla villosa Pall.
(po ten teel lah) (veel loh sah)
Hairy cinquefoil. ROSACEAE.

Short, thick, branched, woody lower stem covered with persistent, dark brown leaf bases and stipules, upper stems, several, 5 to 28 cm (2 to 11 in) tall, with long spreading hairs; basal leaves long stalked with long spreading hairs, divided into three leaflets (fig. 86), leaflets obovate to orbicular, coarsely three to nine toothed, green with long, silky, soft hairs above, white or grayish mat of intertangled hairs below, strongly ribbed below, stem leaves few, smaller than basal leaves, short stalked; one to several flowers at end of stem, flower stalk with long spreading hair; bractlets elliptic to broadly ovate, 4 to 7 mm (3/16 to 15/16 in) long, hairy; petals yellow, 6 to 12 mm (1/4 to 1/2 in) long, obcordate; stamens usually 20.

HABITAT: Alpine—rocky dry areas, gravelly meadows, rocky outcrops, exposed ridges.

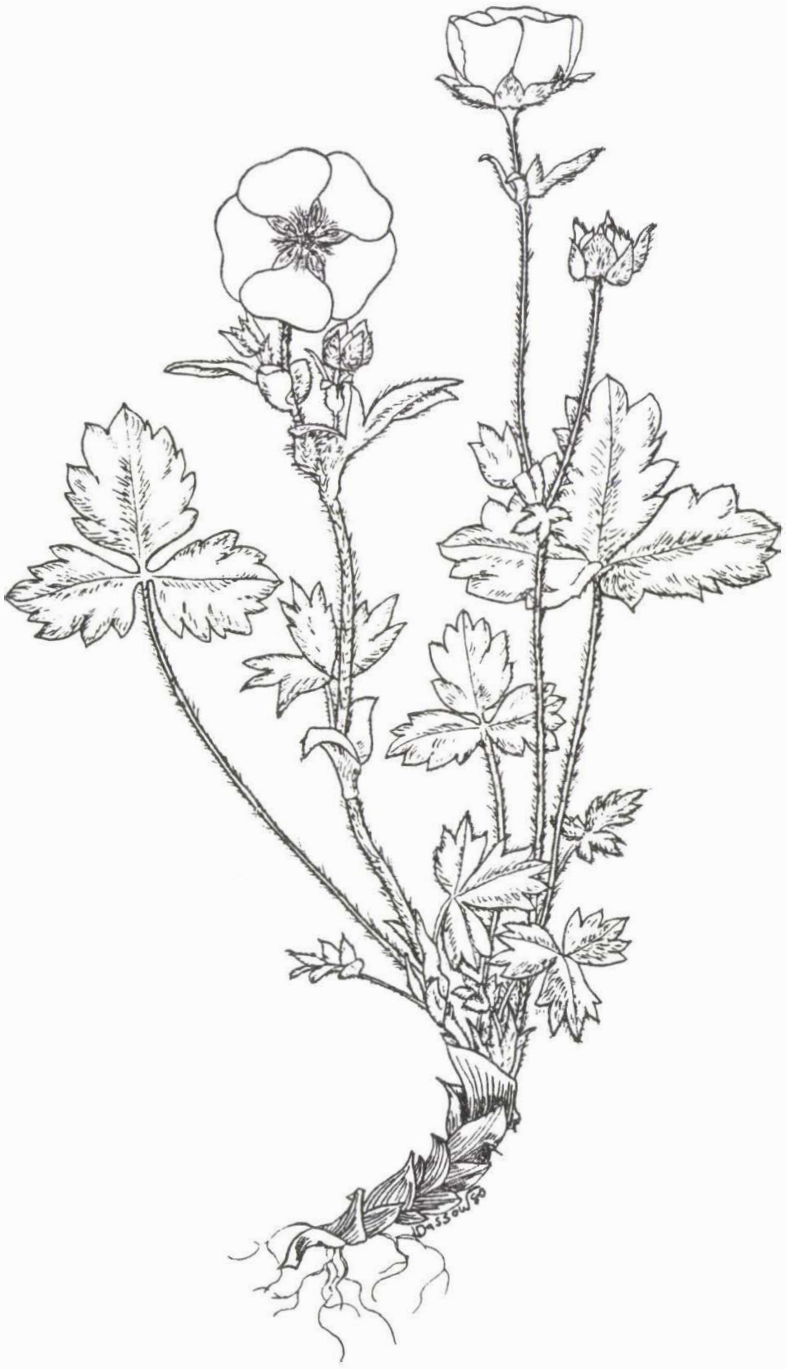

Figure 67—Hairy cinquefoil, *Potentilla villosa* Pallas.

Figure 68

Rubus arcticus L.
(ru bus) (ark tee kus)
Nagoonberry. ROSACEAE.

Plant 3 to 30 cm (1-3/16 to 11-3/4 in) tall, more or less covered with short hairs; leaves palmately compound (fig. 87) or three lobed, blade 1.5 to 5.5 cm (5/8 to 2-3/16 in) long, 2 to 9 cm (3/4 to 3-1/2 in) wide; showy flowers, usually solitary; petals pink to reddish-pink.

HABITAT: Widely distributed from sea level to alpine. Subalpine and alpine—wet meadows, wet heaths, edge of streams.

Rubus stellatus J. E. Smith (ru bus) (stel lah tus) (nagoonberry) also may be found. Leaves palmately three lobed, the lobes rounded, cordate to round; petals long and narrow.

HABITAT: Widely distributed from sea level to alpine. Subalpine and alpine—wet meadows, wet heaths, edge of streams.

USES: Berries richly flavored. Excellent eaten raw or can be used to make jams and jellies or for flavoring liquor.

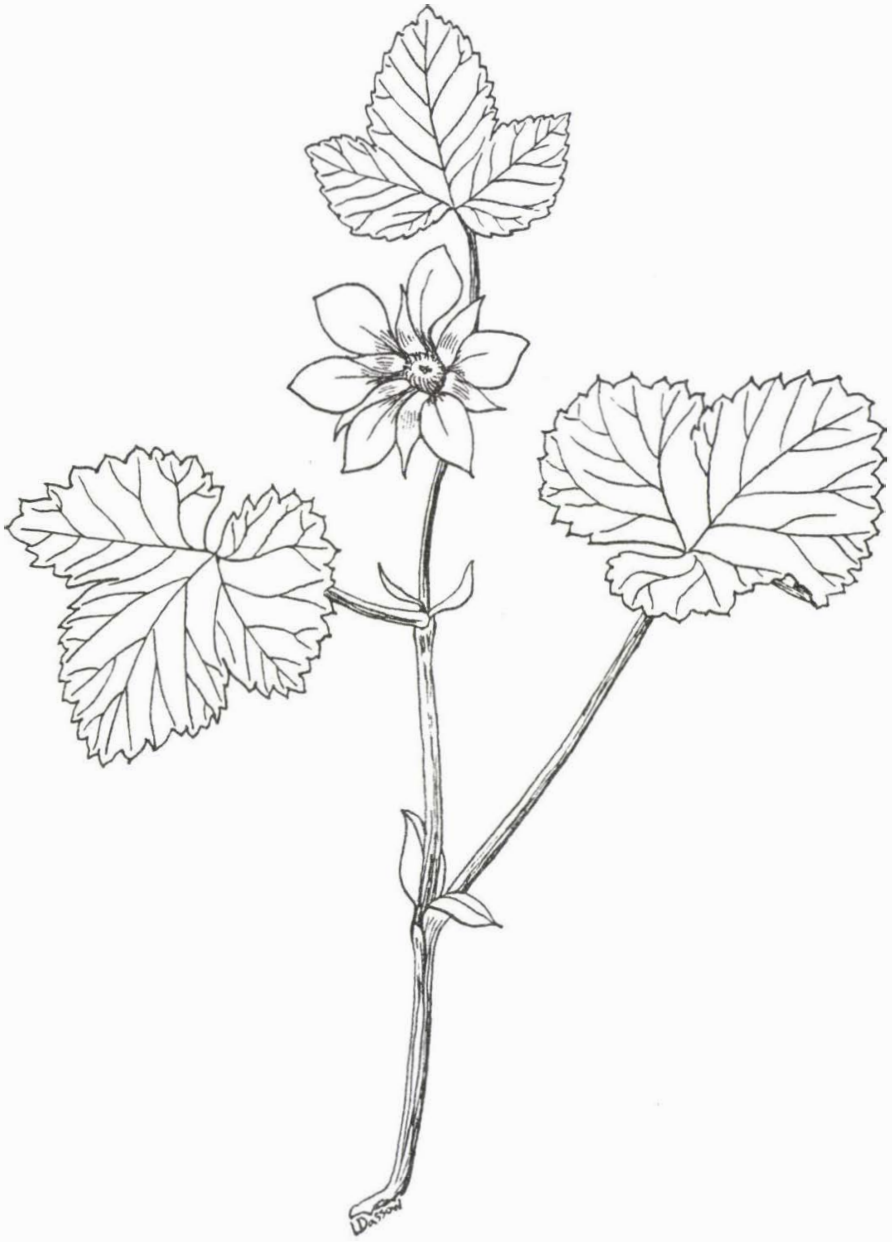

Figure 68—Nagoonberry, *Rubus arcticus* L.

Figure 69

Sibbaldia procumbens L.
(seeb bal dee ah) (pro kum bens)
Sibbaldia. ROSACEAE.

Long, mat-forming, reclining, woody stem; aerial stems 4 to 14 cm (1/8 to 5-1/2 in) tall; long-stalked basal leaves, palmately divided into three leaflets (fig. 86), oblanceolate to obovate, tip with three teeth, terminal leaflet 11 to 32 mm (7/16 to 1-5/16 in) long, 7 to 18 mm (1/4 to 11/16 in) wide, stiff, hairy on both surfaces, stem leaves like basal leaves; persistent, lanceolate stipules join leaf stalk; inconspicuous yellow flowers; five sepals alternating with five sepal-like bracteoles; bracteoles shorter than the broader sepal lobes; five minute linear to oblong, yellow petals; achene stalked, 1 mm (1/16 in) long.

HABITAT: Subalpine and alpine—rocky dry areas, gravelly slopes, near patches of late-lying snow in meadows, and on ridges.

Figure 69—Sibbaldia, *Sibbaldia procumbens* L.

Figure 70

Salix reticulata L.
(sa liks) (reh teh kyoo lah tah)
Netleaf willow. SALICACEAE.

Prostrate, creeping shrub, not a dense-mat former; stems reclining, ascending only a few inches, rooting along stems; twigs greenish-brown when young, reddish-brown with age; leaves oval to round, long, thick leathery, with long red petioles, prominently net veined on both surfaces, with the lower surface venation being more conspicuous, upper surface dark green and roughened, lower surface whitish, often with scattered hair along veins; dense spikelike flower cluster (catkin), erect, slender, 5 cm (2 in) long, on leafless twigs; flower scales (bracts) rounded, long hairs on inner surface, hairless or nearly so on outer surface; stout reddish seed capsule with short white hairs.

HABITAT: Subalpine and alpine—muskegs, rocky slopes, heaths, dry and wet areas.

Salix arctica Pallas (sa liks) (ark teh kah) (Arctic willow) also may occur. Frequently forms dense mats; leaves not conspicuously net veined, two times or more long as broad; catkin on leafy twigs; flower scales broad, blunt, brown to black with long white hairs; young reddish or tawny seed capsules with short soft hairs.

HABITAT: Subalpine and alpine—dry heaths, rocky slopes, rocky ridges.

Salix stolonifera Cov. (sa liks) (stoh loh nee fer ah) (sprouting willow) also may be found. Compact matted shrub without long creeping branches; leaves less than 2.5 cm (1 in) long, glandular toothed in lower half; catkins short, broad, 2 to 4 cm (3/4 to I 1/2 in) long on leafy shoots; reddish-brown hairy scales; seed capsule smooth, greenish, becoming brown with age.

HABITAT: Subalpine and alpine—dry heaths, rocky slopes, rocky ridges.

Figure 70—Netleaf willow, *Salix reticulata* L.

Figure 71

Parnassia palustris L.
(par nas see ah) (pa loos tris)
Northern grass-of-Parnassus. SAXIFRAGACEAE.

Rhizome short, stout; leaves chiefly basal, the stem leaf being a single, nonstalked bract near the middle, or none present; leaves 0.5 to 3 cm (3/16 to 1-3/16 in) long, 0.5 to 2 cm (3/16 to 3/4 in) wide, ovate, cordate or elliptic; flowers showy; white petals 8 to 15 mm (5/16 to 5/8 in) long, seven to nine veins; staminodia (sterile anther or structure lacking an anther) dilated, with several slender hairs, nearly as long as the stamens.

HABITAT: Distributed from sea level to alpine. Subalpine and alpine—bogs, marshes, wet meadows, wet heaths.

Parnassia fimbriata Konig (par nas see ah) (fim bree ah tah) (fringed parnassia) also may be found. Petals fringed along the lower margins; staminodia mostly five to nine segments.

HABITAT: Distributed from sea level to alpine. Subalpine and alpine—bogs, marshes, wet meadows, wet heaths.

Figure 71—Northern grass-of-Parnassus, *Parnassia palustris* L.

Figure 72

Saxifraga bronchiales L.
ssp. *funstonii* (Small) Hult.
(sak see fra jah) (bron kee a lis) (funs toe nee eye)
Spotted saxifrage. SAXIFRAGACEAE.

Slender woody taproot; highly branched, ascending, lower stems sheathed with numerous overlapping, persistent remains of old leaves, densely tufted, mat forming; flower stem glandular hairy, with few to several alternate leaves, plant 1 to 15 cm (3/8 to 6 in) tall; green leaves very closely crowded together, spirally overlapping, 0.3 to 1.5 cm (1/8 to 5/8 in) long, 0.1 to 0.3 cm (1/16 to 1/8 in) wide, leathery, elliptic to oblong, sharply bristled at the tip, margins with bristlelike hairs, ascending to erect when young; flower stem leaves like lower leaves, linear, or tapering to a fine point, nonstalked; flowers showy, yellowish or whitish, terminal raceme (fig. 103); sepals yellowish-green, united at base, deltoid to ovate, nearly as long as wide, margins entire, erect to spreading; petals with an abrupt narrowed base, white or cream colored, with yellow or reddish-orange spots; stamens nearly the same length as petals; capsule broadly oval with long spreading beaks.

HABITAT: Subalpine and alpine—rocky soils, meadows, cliffs, rock crevices.

Saxifraga tolmiei Torr. & Gray (sak see fra jah) (tole mee eh) (alpine saxifrage) also may occur. Leaves alternate, entire, smooth, hairless, not ciliated in margin; flowering stem mostly greater than 2 cm (3/4 in) tall; petals white.

HABITAT: Subalpine and alpine—moist places, snowbeds, rock crevices, wet depression on rocky slopes.

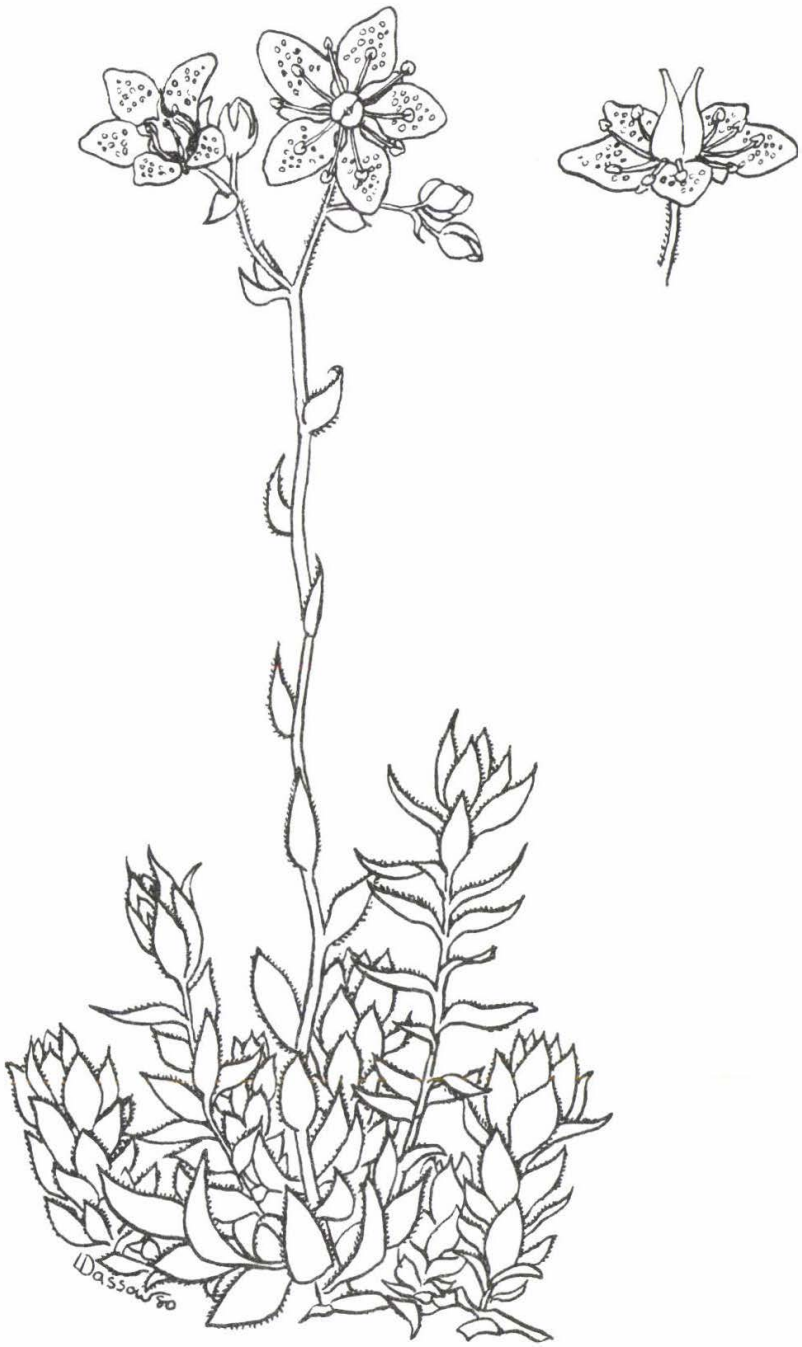

Figure 72—Spotted saxifrage, *Saxifraga bronchialis* L. ssp. *funstonii* (Small) Hult.

Figure 73

Saxifraga ferruginea Grah.
(sak see fra jah) (fer roo gee neh ah)
Alaska saxifrage. SAXIFRAGACEAE.

Fibrous roots; stems mostly single, arising from a thick basal rosette, 6 to 35 cm (2-3/8 to 14 in) tall, conspicously hairy with long, spreading glandular hairs, stem leafless, lower bracts of flower cluster may be leaflike; basal leaves 1.5 to 5.5 cm (9/16 to 2-1/8 in) long, blade oblanceolate to spatulate with wedge-shaped base, 3 to 15 forward-pointing teeth, the alternating teeth occasionally differ in size, hairless to hairy; flowers showy, occasionally replaced by bulblets; sepals green to purplish-green, lanceolate to oblong, bent backwards; petals white, distinctly stalked, arrowhead- or ear-shaped at the base.

HABITAT: Widely distributed from sea level to alpine. Subalpine and alpine—woods, wet meadows, rock crevices, stony slopes.

Saxifraga adscendens L. (sak see fra jah) (ad sen dens) (wedgeleaf saxifrage) also may occur. Basal leaves three toothed, ovate to obovate, three to seven alternate stem leaves; petals white, 3 to 8 mm (1/8 to 5/16 in) long; staminal filaments shorter then sepals.

HABITAT: Alpine—rock crevices, gravelly soils.

Saxifraga caespitosa L. (sak see fra jah) (ses peh toe sah) (tufted saxifrage) also may occur. Leaves with three to seven distinct linear to obtuse lobes, densely overlapping; stems usually one flowered, occasionally two to three flowered; petals white, faintly tinged with yellow near base; stamens longer than sepals, shorter than petals.

HABITAT: Alpine—stony slopes, gravelly ridges, cliffs, often on limestone.

Saxifraga lyallii Engler (sak see fra jah) (li al lee eye) (red-stem saxifrage) also may occur. Basal leaves fan-shaped, abruptly contracted into leaf stalk, with 7 to 17 teeth or lobes; petals white to yellowish-white, obovate or rounded, with distinct narrowed base; stamen broadest at the middle.

HABITAT: Alpine—moist places, snowbeds, edge of rocky streams, wet heath slopes.

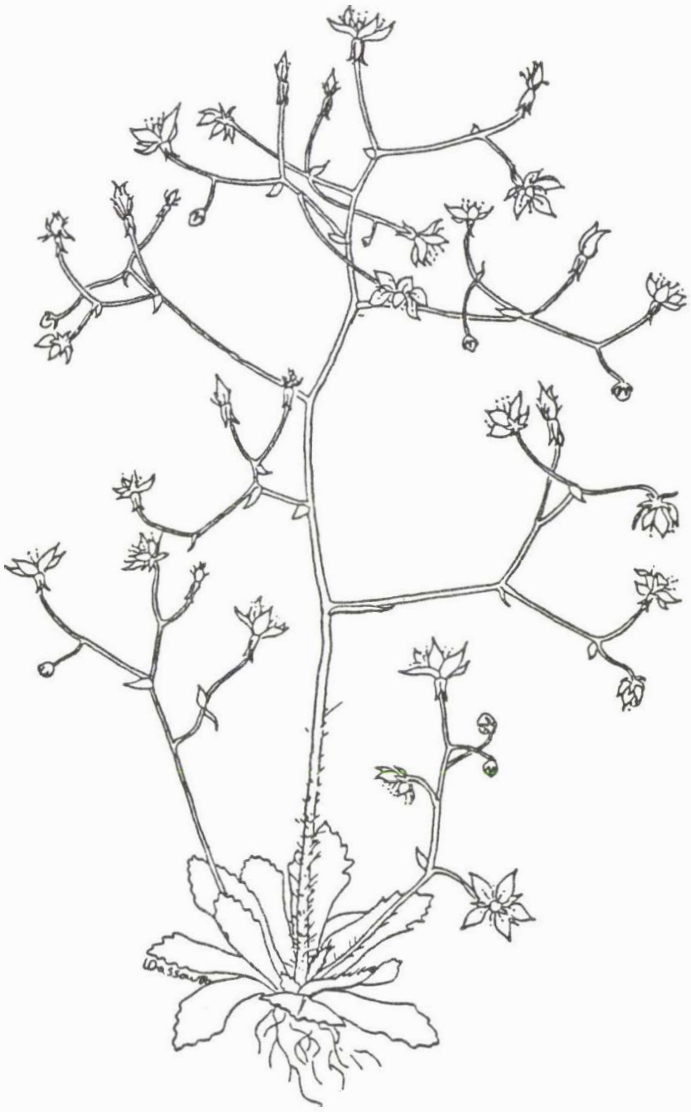

Figure 73—Alaska saxifrage, *Saxifraga ferruginea* Grah.

Saxifraga tricuspidata Rottb. (sak see fra jah) (tri cus peh dah tah) (three-tooth saxifrage) also may occur. Stem leaves present below the flower cluster; basal leaves three toothed, leathery, wedge to oblanceolate shaped; petals elliptic, white, with yellow spots at base, red spot at tip.

HABITAT: Subalpine and alpine—woods, heaths, gravelly slopes, rocky cliffs, rock crevices.

Figure 74

Saxifraga oppositifolia L.
(sak see fra jah) (op poh see tee fo lee ah)
Purple mountain saxifrage. SAXIFRAGACEAE.

Mat-forming plant 2 to 7 cm (3/4 to 2-3/4 in) tall, persistent lower stem is highly branched, rooting along branches; fleshy, opposite leaves arranged in four rows, densely overlapping, oblong to obovate, boat-shaped, nonstalked, entire, somewhat hairy; flowers showy, single, nonstalked; green to purplish sepals 2 to 3.5 mm (1/16 to 1/8 in) long, erect, bristly; reddish-purple petals, obovate, two to two and one-half times longer than lobes of sepals, more or less bell shaped with a horizontal flaring rim.

HABITAT: Alpine—moist stony slopes, cliffs, rock crevices.

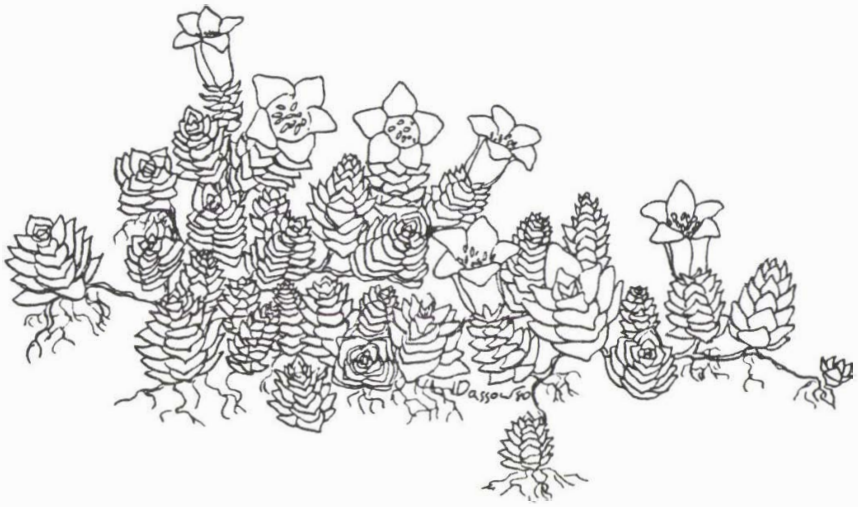

Figure 74—Purple mountain saxifrage, *Saxifraga oppositifolia* L.

Figure 75

Saxifraga punctata L.
(sak see fra jah) (poonk tah tah)
Brook saxifrage. SAXIFRAGACEAE.

Thin, elongated rhizomes with underground runners; flowering stems 3 to 60 cm (1-3/16 to 24 in) tall, leafless, sparsely hairy, reddish-purple to greenish-purple; basal leaves cordate to kidney shaped, 2 to 12.5 cm (3/4 to 5 in) long, 1 to 6 cm (3/8 to 2-3/8 in) wide, with 9 to 19 teeth or lobes, leathery, long stalked, stalk and blade often tinged with red; flowers in a terminal, branched, open cluster; sepals green to purple, ovate to lanceolate, strongly bent backwards; petals white to pink, ovate to oblong, base sharply narrowed, 2.5 to 4.5 mm (1/8 to 3/16 in) long.

HABITAT: Distributed from sea level to alpine. Subalpine and alpine—woods, wet meadows, small stream channels.

Saxifraga mertensiana Bong. (sak see fra jah) (mer ten see ah nah) (wood saxifrage) also may occur. Leaves basal, round or kidney shaped with shallow three to five toothed lobes, stem leaves lacking; petals white, 2.5 to 3.5 mm (1/16 to 1/8 in) long; lanceolate sepals, green or purplish-green, bent backwards; flowering stem often with both flowers and bulblets.

HABITAT: Subalpine-alpine—woods, moist rocks, cliffs, rocky stream channels.

Saxifraga rivularis L. (sak see fra jah) (ree vou lar is) (brook saxifrage) also may occur. Leaves kidney shaped, with three to seven ovate to ovate-lanceolate lobes; petals white or reddish, 3 to 8 mm (1/8 to 5/16 in) long; sepals not bent backwards, tube top-shaped.

HABITAT: Alpine—wet places, snowbeds, gravelly soils, cliffs.

USES: Leaves were eaten raw or cooked. Leaves were used by Eskimo to make sauerkraut.

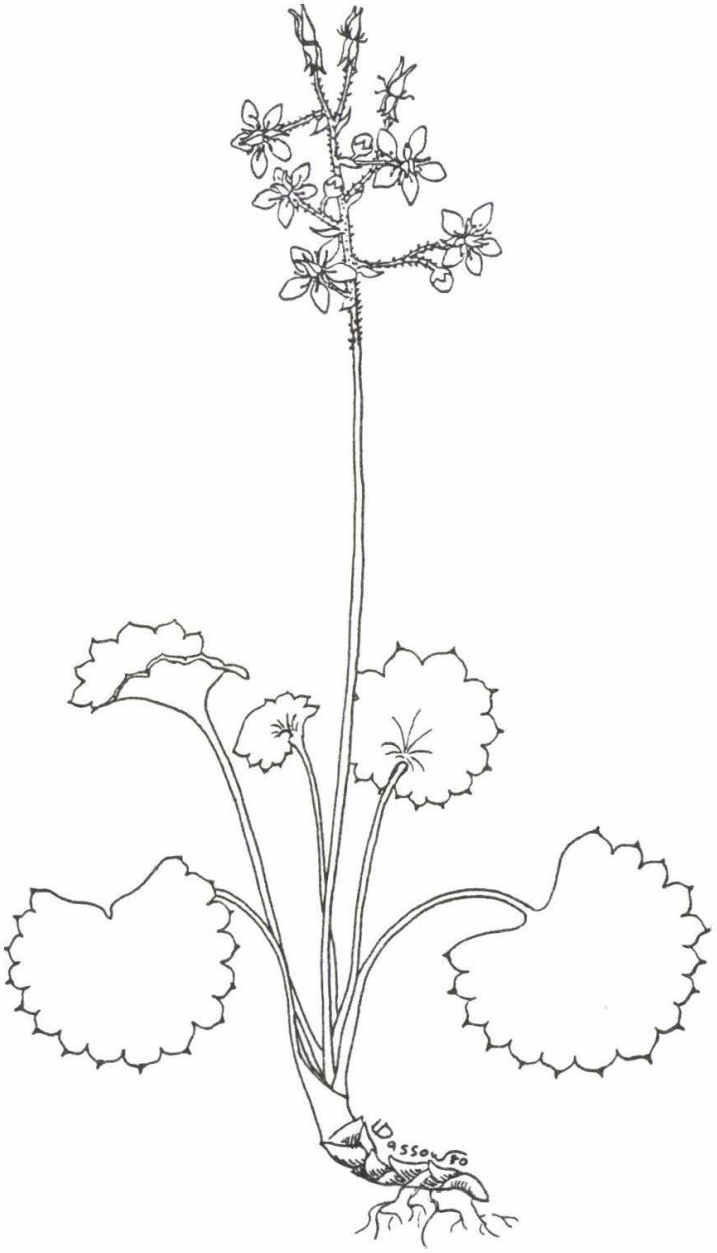

Figure 75—Brook saxifrage, *Saxifraga punctata* L.

Figure 76

Castilleja parviflora Bong.
(kas teel leh ha) (par veh flor ah)
Smallflowered Indian paintbrush. SCROPHULARIACEAE.

Lower part of stem thick, unbranched, persistent; stems several, 10 to 50 cm (4 to 20 in) tall, much blackened on drying; leaves alternate, nonstalked, 1.5 to 5 cm (9/16 to 2 in) long, one to two pairs of lateral lobes, lanceolate to ovate, prominently three veined, smooth on both surfaces, reddish-green on tips; flowers in dense spike at the end of the stem; hairy leaflike bracts, more or less enclosing flowers, rose-pink to crimson; hairy, funnel-shaped, rose-pink sepals, united with distinct linear lobes; petals rose-pink, united to form two lips, lower lip 1.5 to 3 mm (1/16 to 1/8 in) long, three acute teeth, upper lip helmet shaped 3 to 7 mm (1/8 to 1/4 in) long, greenish, entire tooth in tip.

HABITAT: Alpine—meadows, heaths.

Castilleja miniata Doug. (kas teel leh ha) (min ee ah tah) (scarlet Indian paintbrush) also may occur. Lower lip is less than one-fifth as long as helmet-shaped upper lip; bracts red to crimson or orange; sepal lobes and flower bracts obtuse to acute at the tip.

HABITAT: Alpine—meadows, heaths.

USES: Indian paintbrush should not be eaten because it accumulates the toxic element selenium.

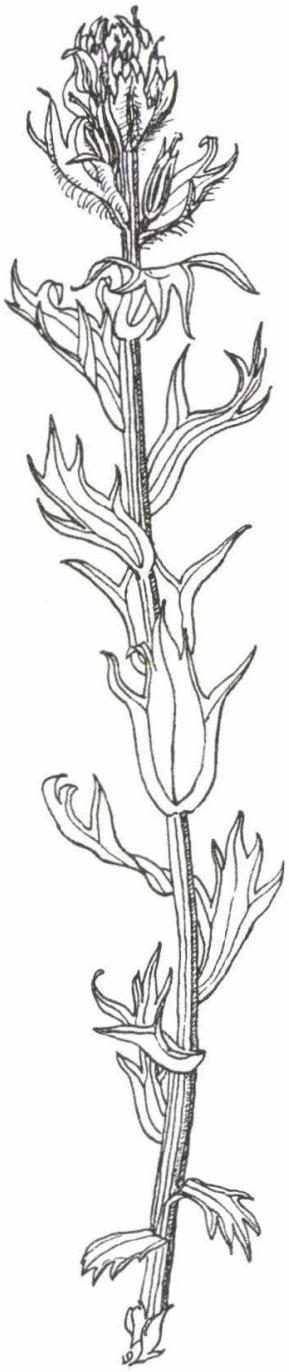

Figure 76—Smallflowered Indian paintbrush, *Castilleja parviflora* Bong.

Figure 77

Castilleja unalaschcensis (Cham. & Schlecht.) Malte
(kas teel leh ha) (yoo na lash kensis)
Unalaska Indian paintbrush. SCROPHULARIACEAE.

Numerous, slender roots; lower part of stem woody and branched, upper part nonwoody (herbaceous), stems 20 to 80 cm (8 to 32 in) tall, simple or sometimes branched above, hairs more numerous in flower clusters; basal leaves lacking, stem leaves 3.5 to 10 cm (1-3/16 to 4 in) long, lanceolate to ovate, tapering to pointed tip, hairy on both surfaces, three to five veined, margins entire, nonstalked; flower bracts lanceolate to ovate, lowermost entire, others with two broad, lateral lobes, greenish to bright yellow; united sepals greenish-yellow with distinct lateral lobes; petals greenish-yellow, united to form two lips, lower lip 1 to 2 mm (1/16 in) mostly entire, upper lip helmet shaped, straight, 15 to 28 mm (11/16 to 1-1/16 in) long.

HABITAT: Widely distributed from sea level to alpine. Subalpine and alpine—meadows, open woods, heaths.

USES: Indian paintbrush should not be eaten because it accumulates the toxic element selenium.

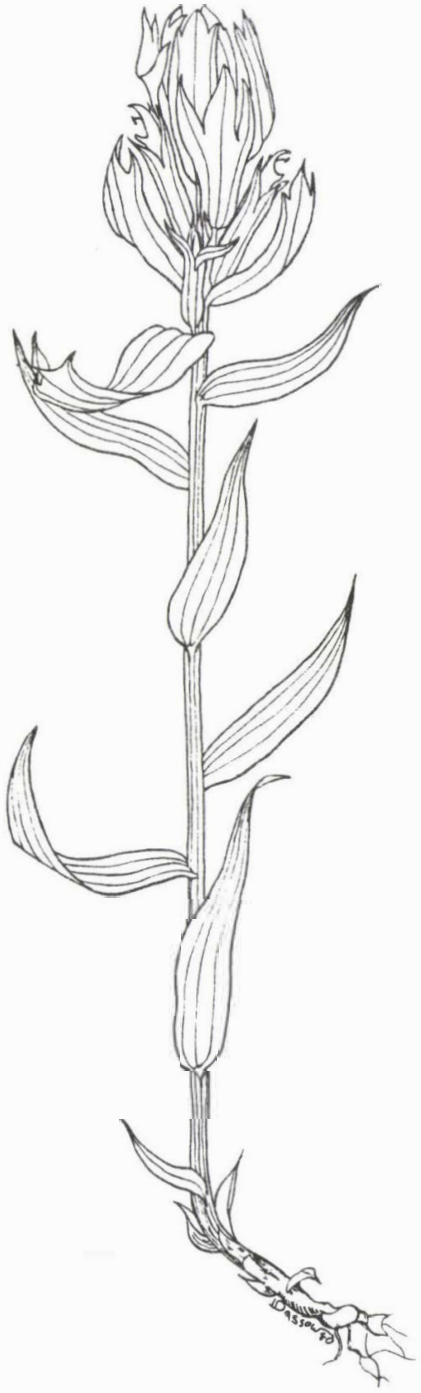

Figure 77—Unalaska Indian paintbrush, *Castilleja unalaschcensis* (Cham. & Schlecht.) Malte.

Figure 78

Pedicularis oederi M. Vahl
(peh dee cyoo lar is) (eh der ee)
Oeder lousewort. SCHROPHULARIACEAE.

Thick, yellowish-white, spindle-shaped roots; lower part of stem persistent, rose-purple, simple, thick, hairless at base, silky hair above, 4 to 25 cm (1-9/16 to 10 in) tall; stem leaves alternate, most leaves basal, long stalked, divided into oblong to ovate segments on opposite sides of midrib, margins with outward directed teeth, upper surface green to purplish-green, lower surface light green; bracts similar to leaves, becoming smaller and only one lobed or toothed; cluster of several to many flowers on end of stem; united sepals with five triangular, lanceolate teeth, shorter than the tube, five purple ridges, more or less hairy; yellow petals united to form a helmet-shaped arched upper lip and a three-lobed lower lip with large lateral lobes, upper lip brownish-red near tip with two red spots; staminal filaments hairy.

HABITAT: Alpine—meadows, moist to dry heaths, rocky slopes, small stream channels, cliffs.

USES: The root is edible. It was gathered in the fall and boiled or roasted. The flowers were used for flavoring or for making a fermented drink.

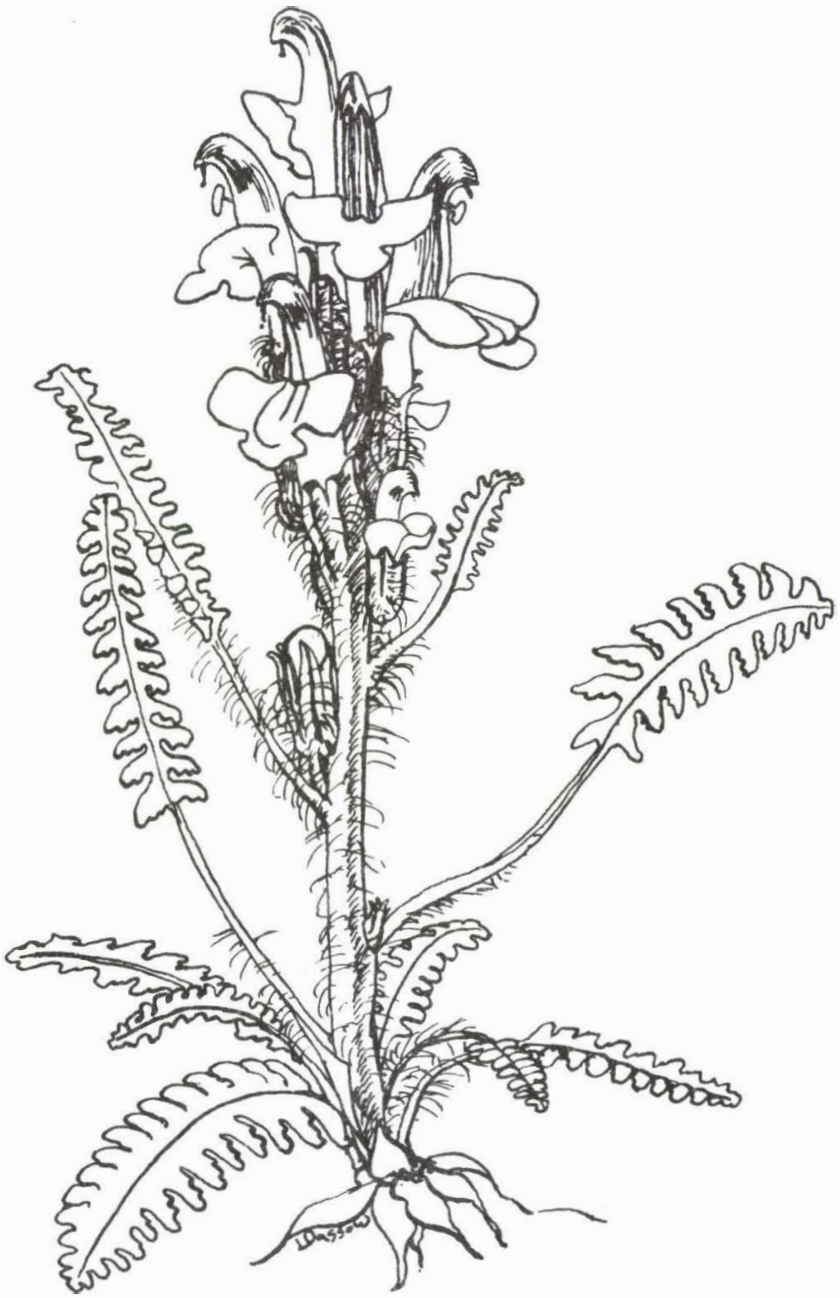

Figure 78—Oeder lousewort, *Pedicularis oederi* M. Vahl.

Figure 79

Pedicularis verticillata L.
(peh dee cyoo lar is) (ver teh cel la ta)
Whorled lousewort. SCROPHULARIACEAE.

Thick, stout, branched taproot; lower part of stem persistent, upper stems simple or branched, hairy, 5 to 30 cm (2 to 12 in) tall; a basal dense cluster of leaves arranged in circular fashion, long stalked, sparsely hairy, stem leaves whorled, deeply divided into broad, oblong to ovate segments on opposite sides of midrib; 1 to 12 distinct whorls of flowers with two to five flowers per whorl, whorls subtended by reduced leaflike bracts, upper bracts shorter than flowers; united lavender sepals with five triangular, acute teeth, hairy in margins, dark prominent veins; helmet-shaped lavendar-purplish petals, lightly arched, spreading, blunt upper lip, three-lobed lower lip, funnel-shaped tube bent almost at a right angle, throat of tube light colored with dark purple veins; stamens of two lengths, hairy.

HABITAT: Distributed from sea level to alpine. Subalpine and alpine—meadows, woods, heaths, rocky slopes.

Pedicularis lanata Cham. and Schlecht. (peh dee cyoo lar is) (lah nah tah) (kane lousewort) also may occur. Flower cluster large, dense, covered with long tangled woolly hairs; lavendar helmet-shaped lip lacking subterminal teeth, less than twice as long as petal tube; stem leafy.

HABITAT: Alpine—windswept slopes, dry stony areas, wet to dry heaths.

Pedicularis ornithorhyncha Benth. (peh dee cyoo lar is) (or nee tho rin ka) (birdbeak lousewort) also may occur. Flowers purple, helmet-shaped upper lip prolonged into conical beak, 2 to 4 mm (1/16 to 3/16 in) long; stem leaves alternate, one or none.

HABITAT: Alpine—windswept slopes, windblown ridgetops, meadows.

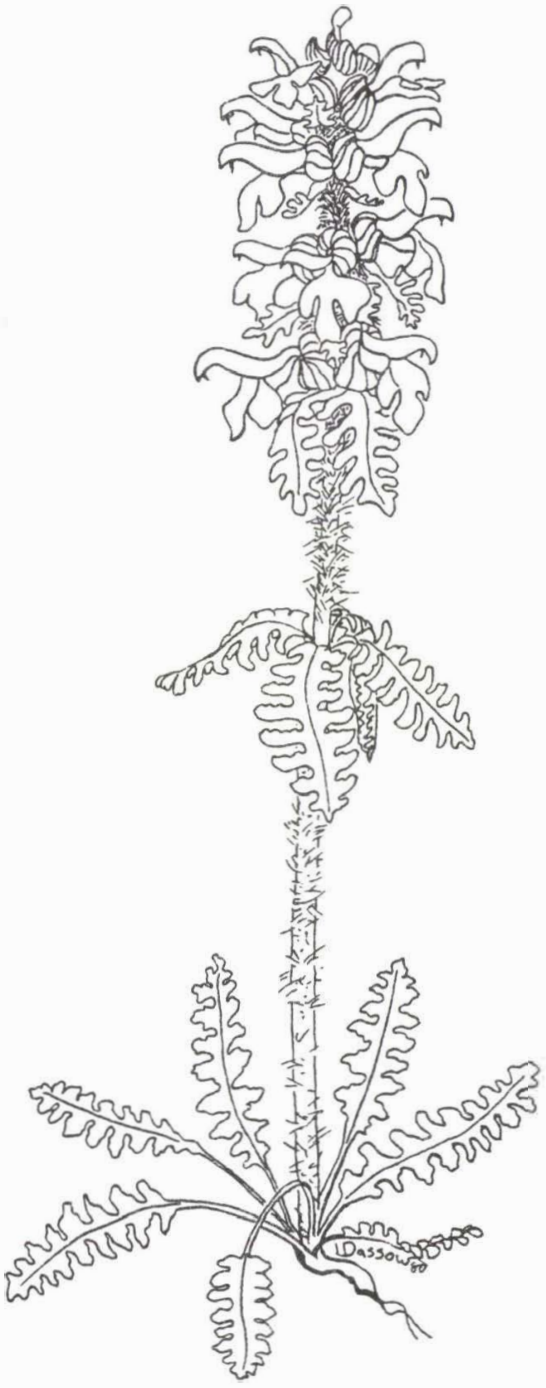

Figure 79—Whorled lousewort, *Pedicularis verticillata* L.

USES: The root is edible. It was gathered in the fall and boiled or roasted. The flowers were used for flavoring or for making a fermented drink.

Figure 80

Valeriana sitchensis Bong.
(va leh ree an ah) (sit chen sis)
Sitka valerian. VALERIANACEAE.

Strongly odoriferous (stinky) plant; stout rhizome; stems leafy, hollow, 30 to 100 cm (1 to 3-1/2 ft) tall, usually with four or five leaf attachment points below bracts of flowers; leaves mostly on the stem, lower pair much reduced, middle leaves long stalked, one to two pairs of lateral leaflets and a large terminal leaflet, upper leaves nearly unstalked, reduced in size; compact, flat-topped flower cluster, expanding in fruit; pink-tinged white petals united to form a funnel with a flaring rim, lobes shorter than tube.

HABITAT: Subalpine and alpine—moist meadows, moist heaths, wet stream channels.

USES: Tlingit referred to it as "medicine-that-stinks." Crushed plant was rubbed on sore muscles, put on mother's nipples when it was time to wean a child, and blown on traps to give them luck.

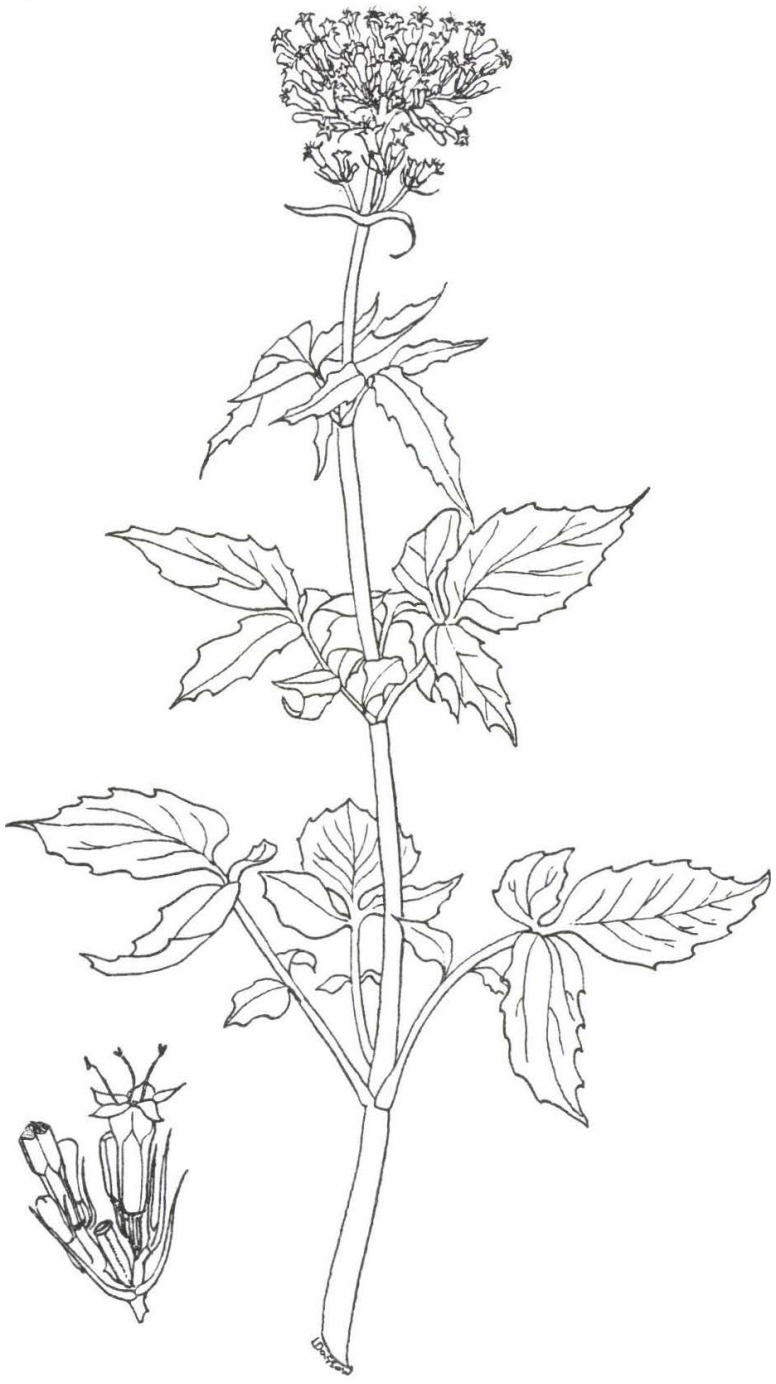

Figure 80—Sitka valerian, *Valeriana sitchensis* Bong.

Figure 81

Viola glabella Nutt.
(vee o lah) (glah bel lah)
Stream violet. VIOLACEAE.

Stems from thick, horizontal rootstock; aerial stems 5 to 30 cm (2 to 12 in) tall, with one to three internodes; entire or glandular-toothed stipules 5 to 10 mm (3/16 to 3/8 in) long; upper leaves short, frequently less than 1 cm (7/16 in) long, basal leaves long stalked, reniform to cordate, margins rounded to sharp toothed, short haired, stem leaves smaller; flower 7 to 16 mm (1/4 to 9/16 in) long, yellow; spur short and blunt; purplish-veined lower petal, lateral petals bearded; bearded style.

HABITAT: Widely distributed from sea level to alpine. Subalpine and alpine—moist woods, moist meadows, edge of small water channels.

USES: Young leaves and flower buds were eaten raw in salads. Leaves and flowers were used as potherb. In Southern United States, violets were often used to thicken soup. The flowers were candied and used to flavor vinegar. Slow dried violet leaves make a good tea. The leaves and flowers were eaten as a possible preventive and corrective of bronchial disorders.

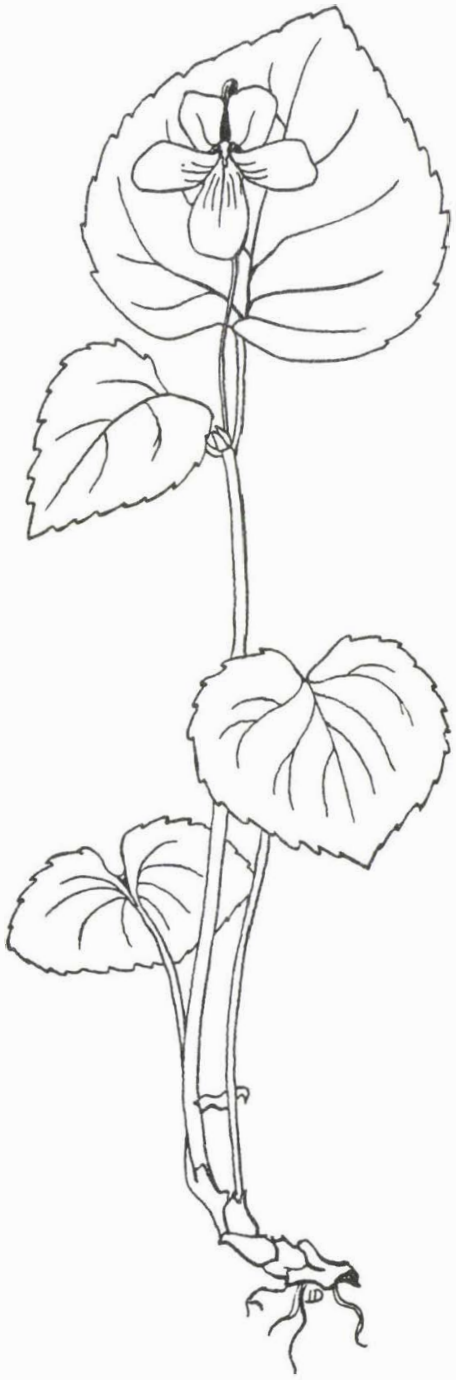

Figure 81—Stream violet, *Viola glabella* Nutt.

Figure 82

Viola langsdorffii (Reg.) Fisch.
(vee o lah) (langz dorf fee eye)
Alaska violet. VIOLACEAE.

Rhizome thick; leaves 1.1 to 5 cm (3/8 to 2 in) long, 1 to 5 cm (3/8 to 2 in) wide, cordate to kidney shaped with long leaf stalks; large flowers with dark bluish-purple petals, the lower ones united and white at the base, the lateral pair with long hairs.

HABITAT: Widely distributed from sea level to alpine. Subalpine and alpine—moist woods, meadows, dry heaths, grassy rock outcrops.

USES: Young leaves and flowers were eaten raw or cooked. Slow dried violet leaves make a tea. Flowers can be candied or used to flavor vinegar. The leaves and flowers were eaten as a possible preventive and corrective of bronchial disorders.

Figure 82—Alaska violet, *Viola langsdorffii* (Reg.) Fisch.

Illustrations of Plant Parts (Figures 83 Through 107)

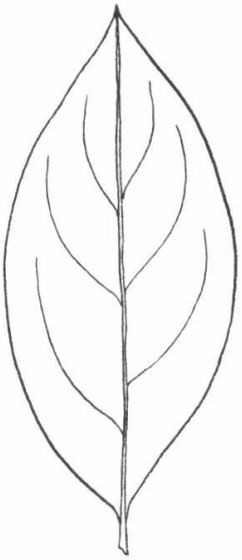

Figure 83—Simple leaf; entire margin.

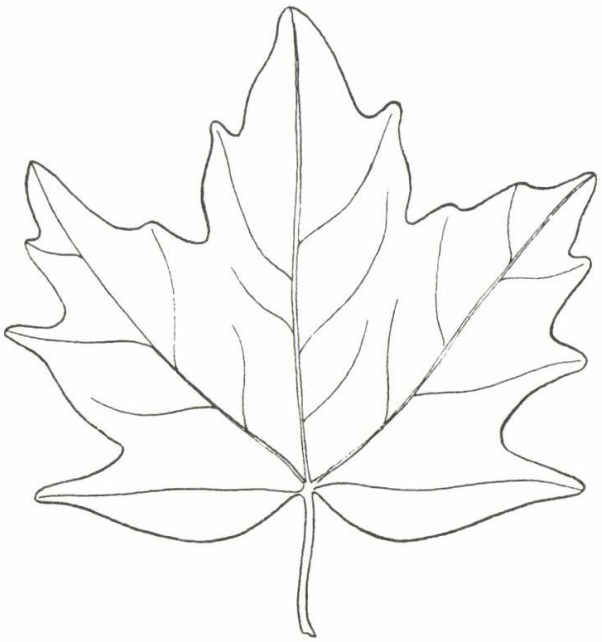

Figure 84—Simple leaf; palmately lobed.

Figure 85—Pinnately compound.

Figure 86—Ternately compound.

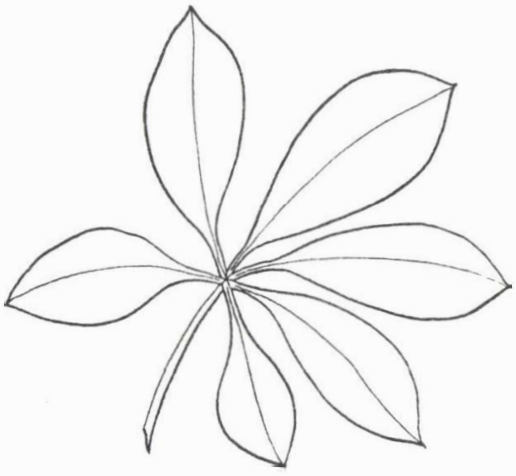

Figure 87—Palmately compound.

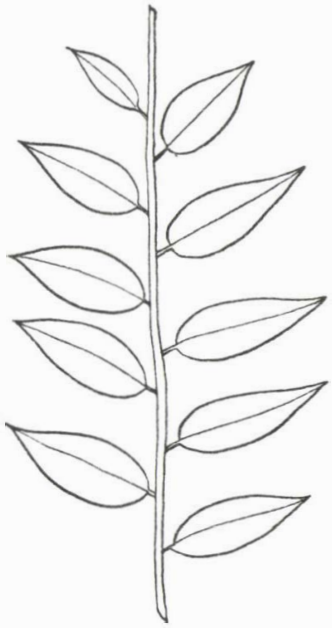

Figure 88—Alternate arrangement.

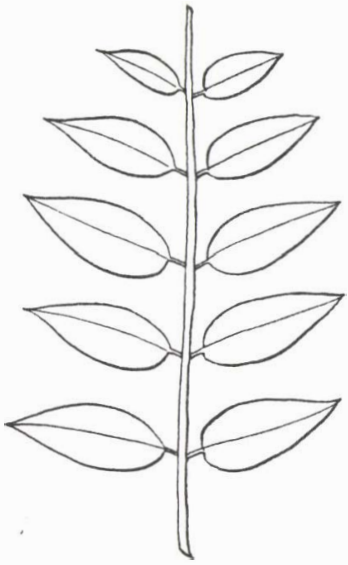

Figure 89—Opposite arrangement.

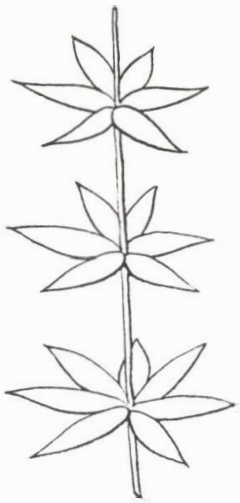

Figure 90—Whorled arrangement.

Figure 91—Linear leaf.

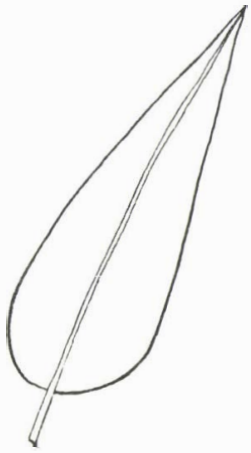

Figure 92—Lanceolate leaf.

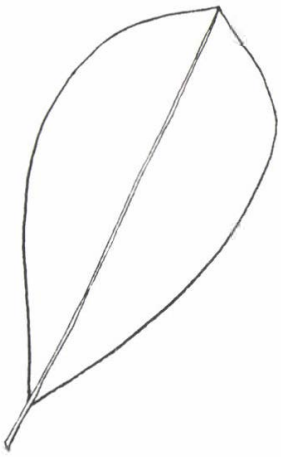

Figure 97—Obovate leaf.

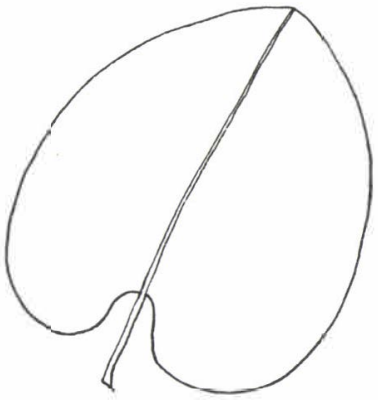

Figure 98—Cordate leaf.

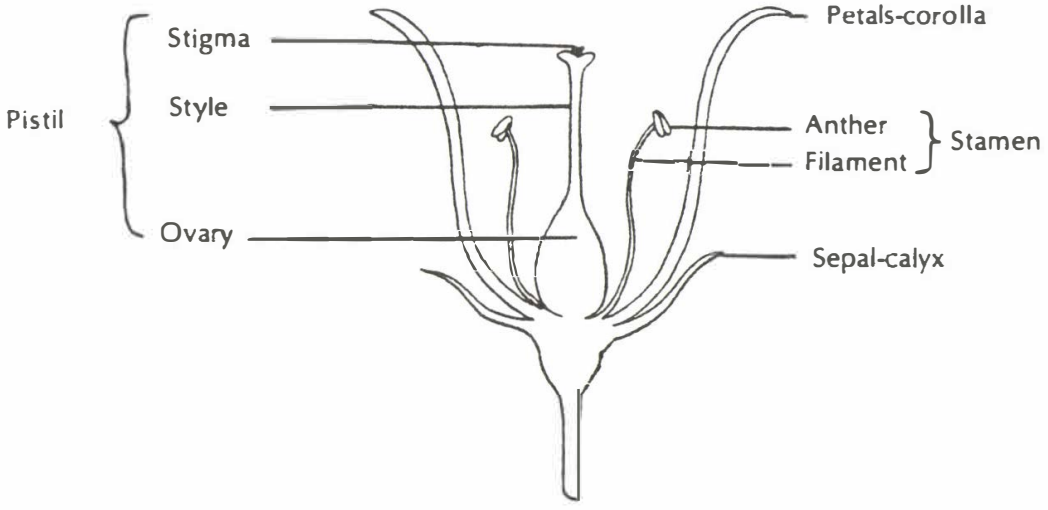

Figure 99—Flower parts.

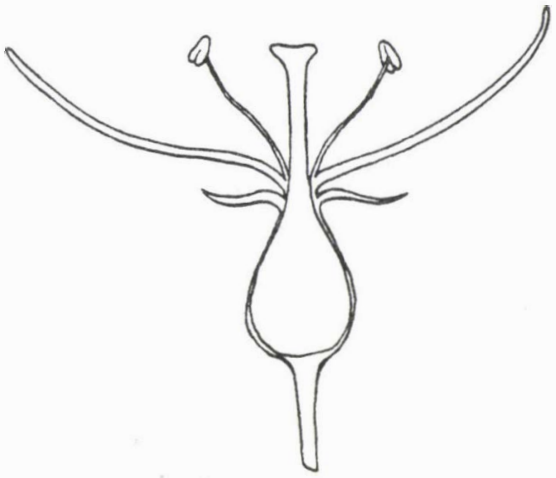

Figure 100—Inferior ovary.

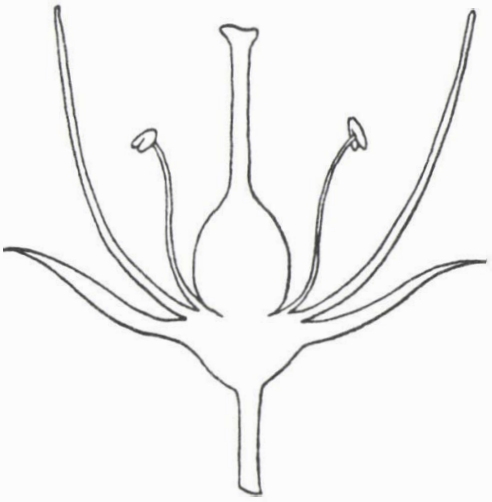

Figure 101—Superior ovary.

Figure 102—Spike inflorescence.

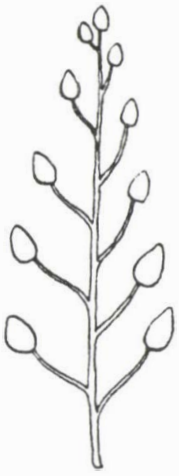

Figure 103—Raceme inflorescence.

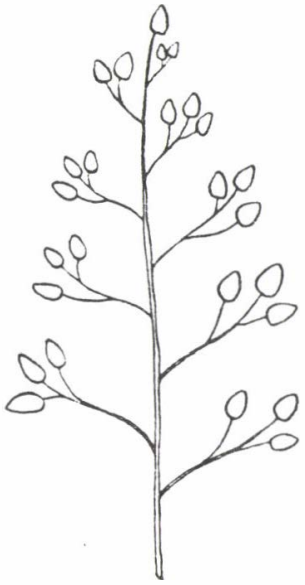

Figure 104—Panicle inflorescence.

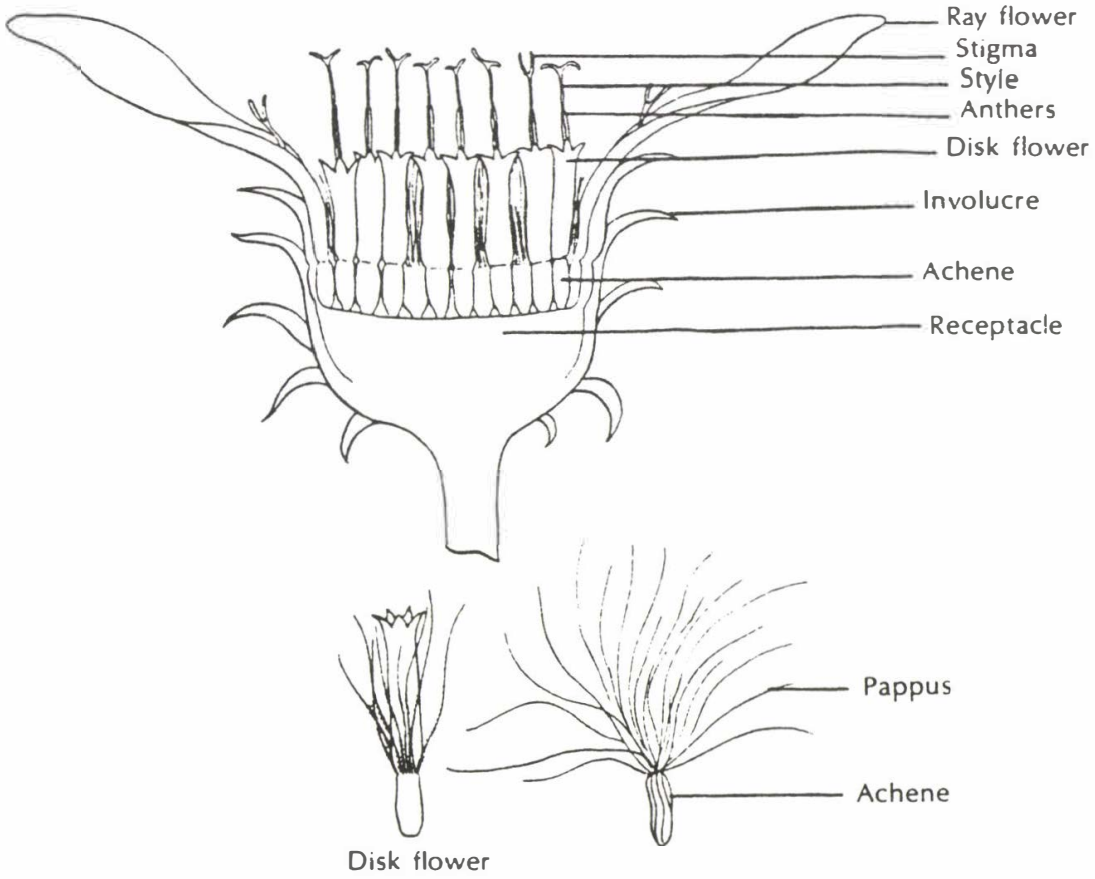

Figure 105—Head inflorescence.

Glossary

Achene: A small, dry, one-seeded closed fruit in which the ovary wall is free from the seed (see fig. 104).

Alpine: An environmental zone above timberline but below the regional snowline.

Alternate: Arrangement of leaves or other plant parts occurring singly at a node (see fig. 88).

Annual: Never woody; reproduces by seed each year; usually has weak root system (never has rhizomes, bulbs, or corms) and is easily pulled from the ground.

Anther: The portion of a stamen containing the pollen (see fig. 99).

Ascending: Growing obliquely upward, often curving upward, usually at about 40 to 60 degrees.

Axil: The angle between a branch or leaf and the axis (main branch) from which it arises.

Barbed: With rigid, short, reflexed hairs, like the barb of a fish hook.

Barbellate: Finely barbed usually down the sides of the structure as well as at the apex.

Basal: Situated at or growing from the base of the stem or from the root.

Beak: A hard or firm point on the keel of some legume flowers.

Berry: A simple fleshy or pulpy fruit with several seeds.

Blade: The expanded part of a leaf (see fig. 83).

Bog: Wet, spongy ground.

Bract: A small leaf from the axil of which a flower or a floral axis arises; also a small leaf just below the flower or flower cluster.

Bristle: A stiff hair.

Bulb: An underground leaf bud with fleshy scales; for example, an onion.

Bulblet: A small bulb especially one borne above the ground on the flower stalk.

Callus: A protuberance having a hard texture, often swollen.

Calyx: The outermost series of the perianth of a flower, usually green in color; the sepals as a whole (see fig. 99).

Capillary: Very slender and hairlike.

Capsule: A dry, dehiscent (opening by definite pores or slits) fruit made up of more than one simple pistil.

Ciliate: Having marginal fringe of hair.

Clasping: Usually refers to a leaf without a petiole with the lower edges of the blade partly or completely surrounding the stem.

Compound leaf: A leaf divided into two or more parts or leaflets (see figs. 85 and 87).

Cordate: Heart shaped, often referring to leaves having petiole attached at the broad, notched end (see fig. 98).

Corolla: The petals of a flower, collectively (see fig. 99).

Deciduous: Falling off; losing leaves in autumn.

Decoction: The act or process of boiling in water to extract the flavor or principle; an extract obtained by this process.

Depressed: More or less flattened from above.

Desiccation: Drying out; to remove moisture.

Disk: The central part of the Compositae flower head bearing tubular flowers (see fig. 104).

Divided: Deeply lobed, the sinuses extending to the base of the leaf or to the midrib.

Elliptic: Broadest at the middle, the ends rather equal. The length is at least twice the width (see fig. 93).

Entire: Describing an even margin without teeth or lobes (see fig. 83).

Evergreen: Having green leaves or needles throughout the year.

Fan-shaped: Shaped like an opened folding fan; triangular with the upper side convex.

Fell-field: A treeless rock-strewn area above timberline and dominated by low plants, shrubs, grasses, and sedges.

Fern: Most fern leaves arise directly from a horizontal rhizome just below the surface of the ground. Flowering plants resembling ferns have leaves arising from an erect stem or from a fleshy taproot.

Fertile: Capable of reproduction.

Filament: That part of the stamen supporting the anther (see fig. 99).

Flower: A modified stem concerned with the production of seeds. Usual parts are outer whorl-sepals, whorl-petals, stamens, and pistil.

Foliolate: Having leaves.

Follicle: A dry, one-celled pod or fruit having one suture (seam or line of fusion) and splitting along this suture to release seeds.

Frond: The leaf of a fern.

Fruit: A ripened ovary and any other structures that enclose it at maturity.

Funnel-shaped: With the tube widening upward and passing gradually into the limb.

Glabrous: Smooth, no hairs present.

Gland: An organ or protuberance on or embedded in a plant surface, often secretes a sticky substance.

Glandular: Having or bearing glands.

Glaucous: Having a powdery or waxy coating that gives a frosted appearance and tends to rub off.

Graminoid: Being grasslike.

Head: A dense cluster of sessile or nearly sessile flowers or fruits on a very short axis; used especially for the involucrate inflorescence in Compositae.

Heathland (heath): Open areas overgrown with low-growing evergreen shrubs and coarse herbs.

Herb: A plant without a woody stem above the ground, usually dying to the ground in autumn.

Herbaceous: A nongrasslike, nonwoody plant; herb.

Hood: A helmet-shaped part of the petals or sepals, or both.

Hooked: Abruptly curved at tip.

Indusium: The thin scalelike outgrowth of the fern leaf forming a covering for the young sorus.

Infusion: The liquid extract attained from the process of steeping or soaking a plant part in water.

Inferior: In reference to a plant part positioned below another organ, as an inferior ovary with the flower parts inserted around the top (see fig. 100).

Inflorescence: General distribution and arrangement of flowers on a stem (see figs. 102 through 105).

Involucre: A whorl of distinct or united leaves or bracts subtending a flower or inflorescence (see fig. 104).

Keel: A central dorsal ridge; like the keel of a boat.

Lanceolate: Lance shaped; broadest toward the base and tapering to tip (see fig. 92).

Leaflet: A single division of a compound leaf (see figs. 85 through 87).

Lichen: Plants composed of algae and fungi growing in symbiotic association.

Linear: Narrow and flat with sides parallel (see fig. 91).

Lip: Either the upper or lower division of a two-lipped corolla.

Lobe: Any division of an organ, especially if rounded (see fig. 84).

Margin: The edge of a leaf.

Meadow: A tract of grassland.

Membranous: Thin, more or less flexible, and translucent (transmitting rays of light without being transparent) skin or film, as between layers of an onion.

Midvein: The cental vein or rib of a leaf.

Needle: A modified leaf that is long, slender, rather rigid, and more or less sharp at apex.

Node: The place on the stem where leaves or branches normally originate.

Obcordate: Inverted, heart shaped; attached at the point.

Oblanceolate: Inverse of lanceolate; attached at the tapered end.

Oblique: Sides unequal, especially the base of a leaf.

Oblong: Two to four times longer than wide and with nearly parallel sides (see fig. 96).

Obovate: Inversely ovate, attached at the narrow end (see fig. 97).

Opposite: Situated directly across from each other at the same node (see fig. 89).

Oval: The width greater than one-half the length (see fig. 94).

Ovary: The swollen basal portion of a pistil; the part containing the ovules or seeds (see fig. 99).

Ovate: Egg shaped in outline, with the base broader than the tip (see fig. 95).

Palmate: Resembling the open, spread hand. The lobes or divisions attached toward one place at the base (see figs. 84 and 87).

Panicle: A compound or branched raceme with two or more flowers on each branch, with the younger flowers nearest the tip (see fig. 105).

Pappus: The modified calyx in Compositae forming a crown of hair at the top of the achene (see fig. 104).

Parallel: Usually refers to veins of the same size and that run in the same direction.

Pedicel: Any slender stalk, especially one supporting a fruiting or spore-bearing organ. The stalk to a single flower of an inflorescence.

Perennial: Either woody or herbaceous; possesses a well-developed root system or some means of carrying the plant over winter (bulb, corm, rhizome). Usually hard to pull from the ground without breaking off some of the roots.

Perianth: Used when the calyx and corolla cannot be readily distinguished.

Persistent: Remaining attached for a long time.

Petal: A leaflike part of the corolla, usually colored and showy (see fig. 99).

Petiole: The slender stem supporting the blade of a foliage leaf; a leafstalk.

Phytoclimate: The climate near the ground where the plants grow.

Pinna(e): The primary or main division of a pinnately compound leaf (see fig. 85).

Pinnate: Referring to pinnately compound leaves; having the leaflets arranged on each side of a common stem (see fig. 85).

Pistil: The seed-bearing organ of a flower, consisting, when complete, of an ovary, style, and stigma.

Raceme: A type of simple inflorescence in which the individual flowers are borne on pedicels along a more or less elongated axis with the younger flowers nearest the tip (see fig. 103).

Rank: A vertical row; for example, leaves that are two ranked (in opposite rows along the stem).

Ray: One of the flowers of a head inflorescence, having a strap-shaped petal (see fig. 104).

Receptacle: The more or less expanded portion of the flower stalk that bears the organs of a flower or the collected flowers of a head as in Compositae (See fig. 104).

Reflexed: Abruptly bent or turned downward or backward.

Reniform: Kidney shaped, usually attached at the center of the incurved side.

Rhizome: A prostrate elongated underground stem (see fig. 107).

Rosette: A cluster of leaves attached at the base of a plant near the ground.

Scale: A thin, dry, membranous body, usually a degenerative leaf.

Scarious: Thin, dry, membranous, and more or less translucent; not green.

Seed: The matured ovule, consisting of embryo and its coats, with a supply of food.

Sepal: One of the parts of the outer whorl of the flower, usually resembling a small, green leaf (see fig. 99).

Sessile: Without a stalk.

Sheath: A tubular envelope, usually describing that part of the leaf of a grass or horsetail that clasps the stem.

Shrub: A woody, perennial plant smaller than a tree and usually with several basal stems.

Simple: Of only one part, not completely divided into separate segments. Refers to a leaf when not compounded into leaflets (see fig. 83).

Sinus: The depression or recess between two lobes.

Sorus (pl. sori): A cluster or grouping of spore-containing bodies on the underside of a fruiting (fertile) fern frond.

Spatulate: Broad and rounded at tip and tapering at base.

Spore: A simple reproductive body, typically unicellular and microscopic in size with the potential of direct development into a new individual.

Spur: A hollow, saclike part of the flower.

Stamen: The pollen-bearing organ of a flower consisting of a filament and anther (see fig. 99).

Staminodia: A sterile stamen; lacking an anther.

Stigma: The apex of the pistil; the part that receives the pollen (see fig. 99).

Stolon: A trailing shoot above ground that roots at the nodes (see fig. 104).

Style: A prolongation of the ovary commonly bearing the stigma (see fig. 99).

Subalpine: The timberline zone and the forest zone immediately below the alpine zone.

Subtended: Situated closely beneath.

Succulent: Fleshy and full of juice.

Superior: Referring to a plant part positioned above another organ, as a superior ovary with the flower parts inserted below it (see fig. 101).

Talus: A slope formed by an accumulation of rock debris.

Taproot: The primary root continuing the axis of the plant downward.

Terminal: Proceeding from or attached to the end of a stem or branch.

Ternate: Consisting of threes; arranged in threes (see fig. 86).

Throat: The opening of a sympetalous (petals united to form a tube) corolla.

Tufted: Having a cluster of hairs or other slender outgrowths.

Urnshaped: Hollow and cylindrical or ovoid but contracted at or near the mouth like an urn.

Vein: Threads of vascular tissue in a leaf or other organ; especially those which branch.

Vegetative: In reference to parts of plants concerned with growth and nutrition as opposed to reproduction.

Whorl: An arrangement of three or more leaves at one node (see fig. 90).

Wood: The hard fibrous substance beneath the bark that makes up the greater part of the stems and branches of trees and shrubs.

Wing: One of the lateral petals in a sweet pea-like corolla.

Woolly: Long, soft, interwoven hair; matted hair.

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